

SEQUENCE LISTING

<110> Kimber, Wendy
Alessi, Dario

<120> Methods

<130> 002.00280

<150> PCT/GB2004/004060

<151> 2004-09-27

<150> GB 0322689.1

<151> 2003-09-27

<160> 33

<170> PatentIn version 3.1

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<212> PRT

<213> Artificial

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<223> PTP signature motif of phosphatase domain

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Lys Val Pro Ser Thr Pro Val His Leu Thr Asn Glu Met Lys Asn Tyr
995 1000 1005

Met Lys Lys Ser Ser Tyr Met Gln Asp Ser Ala Ile Asp Ser Ser
1010 1015 1020

Ser Lys Asp His His Trp Ser Arg Gly Thr Leu Arg His Ile Ser
1025 1030 1035

Glu Asn Ser Phe Gly Pro Ser Gly Gly Leu Arg Glu Gly Ser Leu
1040 1045 1050

Ser Ser Gln Asp Ser Arg Thr Glu Ser Ala Ser Leu Ser Gln Ser
1055 1060 1065

Gln Val Asn Gly Phe Phe Ala Ser His Leu Gly Asp Gln Thr Trp
1070 1075 1080

Gln Glu Ser Gln His Gly Ser Pro Ser Pro Ser Val Ile Ser Lys
1085 1090 1095

Ala Thr Glu Lys Glu Thr Phe Thr Asp Ser Asn Gln Ser Lys Thr
1100 1105 1110

Lys Lys Pro Gly Ile Ser Asp Val Thr Asp Tyr Ser Asp Arg Gly
1115 1120 1125

Asp Ser Asp Met Asp Glu Ala Thr Tyr Ser Ser Ser Gln Asp His
1130 1135 1140

Gln Thr Pro Lys Gln Glu Ser Ser Ser Ser Val Asn Thr Ser Asn
1145 1150 1155

Lys Met Asn Phe Lys Thr Phe Ser Ser Ser Pro Pro Lys Pro Gly
1160 1165 1170

Asp Ile Phe Glu Val Glu Leu Ala Lys Asn Asp Asn Ser Leu Gly
1175 1180 1185

Ile Ser Val Thr Gly Gly Val Asn Thr Ser Val Arg His Gly Gly
1190 1195 1200

Ile Tyr Val Lys Ala Val Ile Pro Gln Gly Ala Ala Glu Ser Asp
1205 1210 1215

Gly Arg Ile His Lys Gly Asp Arg Val Leu Ala Val Asn Gly Val
1220 1225 1230

Ser Leu Glu Gly Ala Thr His Lys Gln Ala Val Glu Thr Leu Arg
1235 1240 1245

Asn Thr Gly Gln Val Val His Leu Leu Leu Glu Lys Gly Gln Ser
1250 1255 1260

Pro Thr Ser Lys Glu His Val Pro Val Thr Pro Gln Cys Thr Leu
1265 1270 1275

Ser Asp Gln Asn Ala Gln Gly Gln Gly Pro Glu Lys Val Lys Lys
1280 1285 1290

Thr Thr Gln Val Lys Asp Tyr Ser Phe Val Thr Glu Glu Asn Thr
1295 1300 1305

Phe Glu Val Lys Leu Phe Lys Asn Ser Ser Gly Leu Gly Phe Ser
1310 1315 1320

Phe Ser Arg Glu Asp Asn Leu Ile Pro Glu Gln Ile Asn Ala Ser
1325 1330 1335

Ile Val Arg Val Lys Lys Leu Phe Pro Gly Gln Pro Ala Ala Glu
1340 1345 1350

Ser Gly Lys Ile Asp Val Gly Asp Val Ile Leu Lys Val Asn Gly
1355 1360 1365

Ala Ser Leu Lys Gly Leu Ser Gln Gln Glu Val Ile Ser Ala Leu
1370 1375 1380

Arg Gly Thr Ala Pro Glu Val Phe Leu Leu Leu Cys Arg Pro Pro
1385 1390 1395

Pro Gly Val Leu Pro Glu Ile Asp Thr Ala Leu Leu Thr Pro Leu
1400 1405 1410

Gln Ser Pro Ala Gln Val Leu Pro Asn Ser Ser Lys Asp Ser Ser
1415 1420 1425

Gln Pro Ser Cys Val Glu Gln Ser Thr Ser Ser Asp Glu Asn Glu
1430 1435 1440

Met Ser Asp Lys Ser Lys Lys Gln Cys Lys Ser Pro Ser Arg Arg
1445 1450 1455

Asp Ser Tyr Ser Asp Ser Ser Gly Ser Gly Glu Asp Asp Leu Val
1460 1465 1470

Thr	Ala	Pro	Ala	Asn	Ile	Ser	Asn	Ser	Thr	Trp	Ser	Ser	Ala	Leu
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His	Gln	Thr	Leu	Ser	Asn	Met	Val	Ser	Gln	Ala	Gln	Ser	His	His
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Tyr	Pro	Gln	Lys	Ile	Pro	Asn	Lys	Pro	Glu	Phe	Glu	Asp	Ser	Asn
1520						1525					1530			
Pro	Ser	Pro	Leu	Pro	Pro	Asp	Met	Ala	Pro	Gly	Gln	Ser	Tyr	Gln
1535						1540					1545			
Pro	Gln	Ser	Glu	Ser	Ala	Ser	Ser	Ser	Ser	Met	Asp	Lys	Tyr	His
1550						1555					1560			
Ile	His	His	Ile	Ser	Glu	Pro	Thr	Arg	Gln	Glu	Asn	Trp	Thr	Pro
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His	Asp	Val	Ile	Gln	Asp	Pro	Ala	Lys	Ser	Asp	Gly	Arg	Leu	Lys
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Pro	Gly	Asp	Arg	Leu	Ile	Lys	Val	Asn	Asp	Thr	Asp	Val	Thr	Asn
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Met	Thr	His	Thr	Asp	Ala	Val	Asn	Leu	Leu	Arg	Ala	Ala	Ser	Lys
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Thr	Val	Arg	Leu	Val	Ile	Gly	Arg	Val	Leu	Glu	Leu	Pro	Arg	Ile
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Pro	Met	Leu	Pro	His	Leu	Leu	Pro	Asp	Ile	Thr	Leu	Thr	Cys	Asn
1685						1690					1695			
Lys	Glu	Glu	Leu	Gly	Phe	Ser	Leu	Cys	Gly	Gly	His	Asp	Ser	Leu
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Tyr	Gln	Val	Val	Tyr	Ile	Ser	Asp	Ile	Asn	Pro	Arg	Ser	Val	Ala
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Ala	Pro	Lys	Ser	Thr	Lys	Gly	Asn	Gly	Ser	Tyr	Ser	Val	Gly	Ser
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Cys	Ser	Gln	Pro	Ala	Leu	Thr	Pro	Asn	Asp	Ser	Phe	Ser	Thr	Val
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1925						1930					1935			
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1940						1945					1950			

Asp	Asp	Asp	Glu	Ile	Thr	Trp	Gly	Asn	Asp	Glu	Leu	Pro	Ile	Glu
1955						1960					1965			
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1970						1975					1980			
Asn	Asp	Glu	Leu	Ala	Val	Leu	Pro	Val	Val	Lys	Val	Leu	Pro	Ser
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Gly	Lys	Tyr	Thr	Gly	Ala	Asn	Leu	Lys	Ser	Val	Ile	Arg	Val	Leu
2000						2005					2010			
Arg	Gly	Leu	Leu	Asp	Gln	Gly	Ile	Pro	Ser	Lys	Glu	Leu	Glu	Asn
2015						2020					2025			
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2030						2035					2040			
Lys	Glu	Asn	Arg	Arg	Lys	Asn	Arg	Tyr	Lys	Asn	Ile	Leu	Pro	Tyr
2045						2050					2055			
Asp	Ala	Thr	Arg	Val	Pro	Leu	Gly	Asp	Glu	Gly	Gly	Tyr	Ile	Asn
2060						2065					2070			
Ala	Ser	Phe	Ile	Lys	Ile	Pro	Val	Gly	Lys	Glu	Glu	Phe	Val	Tyr
2075						2080					2085			
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Gln	Met	Ile	Trp	Glu	Gln	Lys	Ser	Thr	Val	Ile	Ala	Met	Met	Thr
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2135						2140					2145			
Ala	Leu	Val	Arg	Met	Gln	Gln	Leu	Lys	Gly	Phe	Val	Val	Arg	Ala
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Met	Thr	Leu	Glu	Asp	Ile	Gln	Thr	Arg	Glu	Val	Arg	His	Ile	Ser
2165						2170					2175			
His	Leu	Asn	Phe	Thr	Ala	Trp	Pro	Asp	His	Asp	Thr	Pro	Ser	Gln
2180						2185					2190			

Pro Asp Asp Leu Leu Thr Phe Ile Ser Tyr Met Arg His Ile His
2195 2200 2205

Arg Ser Gly Pro Ile Ile Thr His Cys Ser Ala Gly Ile Gly Arg
2210 2215 2220

Ser Gly Thr Leu Ile Cys Ile Asp Val Val Leu Gly Leu Ile Ser
2225 2230 2235

Gln Asp Leu Asp Phe Asp Ile Ser Asp Leu Val Arg Cys Met Arg
2240 2245 2250

Leu Gln Arg His Gly Met Val Gln Thr Glu Asp Gln Tyr Ile Phe
2255 2260 2265

Cys Tyr Gln Val Ile Leu Tyr Val Leu Thr Arg Leu Gln Ala Glu
2270 2275 2280

Glu Glu Gln Lys Gln Gln Pro Gln Leu Leu Lys
2285 2290

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<212> PRT
<213> Homo sapiens

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Met His Val Ser Leu Ala Glu Ala Leu Glu Val Arg Gly Gly Pro Leu
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Gln Glu Glu Glu Ile Trp Ala Val Leu Asn Gln Ser Ala Glu Ser Leu
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Gln Glu Leu Phe Arg Lys Val Ser Leu Ala Asp Pro Ala Ala Leu Gly
35 40 45

Phe Ile Ile Ser Pro Trp Ser Leu Leu Leu Leu Pro Ser Gly Ser Val
50 55 60

Ser Phe Thr Asp Glu Asn Ile Ser Asn Gln Asp Leu Arg Ala Phe Thr
65 70 75 80

Ala Pro Glu Val Leu Gln Asn Gln Ser Leu Thr Ser Leu Ser Asp Val
85 90 95

Glu Lys Ile His Ile Tyr Ser Leu Gly Met Thr Leu Tyr Trp Gly Ala
100 105 110

Asp Tyr Glu Val Pro Gln Ser Gln Pro Ile Lys Leu Gly Asp His Leu
115 120 125

Asn Ser Ile Leu Leu Gly Met Cys Glu Asp Val Ile Tyr Ala Arg Val
130 135 140

Ser Val Arg Thr Val Leu Asp Ala Cys Ser Ala His Ile Arg Asn Ser
145 150 155 160

Asn Cys Ala Pro Ser Phe Ser Tyr Val Lys His Leu Val Lys Leu Val
165 170 175

Leu Gly Asn Leu Ser Gly Thr Asp Gln Leu Ser Cys Asn Ser Glu Gln
180 185 190

Lys Pro Asp Arg Ser Gln Ala Ile Arg Asp Arg Leu Arg Gly Lys Gly
195 200 205

Leu Pro Thr Gly Arg Ser Ser Thr Ser Asp Val Leu Asp Ile Gln Lys
210 215 220

Pro Pro Leu Ser His Gln Thr Phe Leu Asn Lys Gly Leu Ser Lys Ser
225 230 235 240

Met Gly Phe Leu Ser Ile Lys Asp Thr Gln Asp Glu Asn Tyr Phe Lys
245 250 255

Asp Ile Leu Ser Asp Asn Ser Gly Arg Glu Asp Ser Glu Asn Thr Phe
260 265 270

Ser Pro Tyr Gln Phe Lys Thr Ser Gly Pro Glu Lys Lys Pro Ile Pro
275 280 285

Gly Ile Asp Val Leu Ser Lys Lys Lys Ile Trp Ala Ser Ser Met Asp
290 295 300

Leu Leu Cys Thr Ala Asp Arg Asp Phe Ser Ser Gly Glu Thr Ala Thr
305 310 315 320

Tyr Arg Arg Cys His Pro Glu Ala Val Thr Val Arg Thr Ser Thr Thr
325 330 335

Pro Arg Lys Lys Glu Ala Arg Tyr Ser Asp Gly Ser Ile Ala Leu Asp
340 345 350

Ile Phe Gly Pro Gln Lys Met Asp Pro Ile Tyr His Thr Arg Glu Leu
355 360 365

Pro Thr Ser Ser Ala Ile Ser Ser Ala Leu Asp Arg Ile Arg Glu Arg
370 375 380

Gln Lys Lys Leu Gln Val Leu Arg Glu Ala Met Asn Val Glu Glu Pro
385 390 395 400

Val Arg Arg Tyr Lys Thr Tyr His Gly Asp Val Phe Ser Thr Ser Ser
405 410 415

Glu Ser Pro Ser Ile Ile Ser Ser Glu Ser Asp Phe Arg Gln Val Arg
420 425 430

Arg Ser Glu Ala Ser Lys Arg Phe Glu Ser Ser Ser Gly Leu Pro Gly
435 440 445

Val Asp Glu Thr Leu Ser Gln Gly Gln Ser Gln Arg Pro Ser Arg Gln
450 455 460

Tyr Glu Thr Pro Phe Glu Gly Asn Leu Ile Asn Gln Glu Ile Met Leu
465 470 475 480

Lys Arg Gln Glu Glu Glu Leu Met Gln Leu Gln Ala Lys Met Ala Leu
485 490 495

Arg Gln Ser Arg Leu Ser Leu Tyr Pro Gly Asp Thr Ile Lys Ala Ser
500 505 510

Met Leu Asp Ile Thr Arg Asp Pro Leu Arg Glu Ile Ala Leu Glu Thr
515 520 525

Ala Met Thr Gln Arg Lys Leu Arg Asn Phe Phe Gly Pro Glu Phe Val
530 535 540

Lys Met Thr Ile Glu Pro Phe Ile Ser Leu Asp Leu Pro Arg Ser Ile
545 550 555 560

Leu Thr Lys Lys Gly Lys Asn Glu Asp Asn Arg Arg Lys Val Asn Ile
565 570 575

Met Leu Leu Asn Gly Gln Arg Leu Glu Leu Thr Cys Asp Thr Lys Thr
580 585 590

Ile Cys Lys Asp Val Phe Asp Met Val Val Ala His Ile Gly Leu Val
595 600 605

Glu His His Leu Phe Ala Leu Ala Thr Leu Lys Asp Asn Glu Tyr Phe
610 615 620

Phe Val Asp Pro Asp Leu Lys Leu Thr Lys Val Ala Pro Glu Gly Trp
625 630 635 640

Lys Glu Glu Pro Lys Lys Lys Thr Lys Ala Thr Val Asn Phe Thr Leu
645 650 655

Phe Phe Arg Ile Lys Phe Phe Met Asp Asp Val Ser Leu Ile Gln His
660 665 670

Thr Leu Thr Cys His Gln Tyr Tyr Leu Gln Leu Arg Lys Asp Ile Leu
675 680 685

Glu Glu Arg Met His Cys Asp Asp Glu Thr Ser Leu Leu Leu Ala Ser
690 695 700

Leu Ala Leu Gln Ala Glu Tyr Gly Asp Tyr Gln Pro Glu Val His Gly
705 710 715 720

Val Ser Tyr Phe Arg Met Glu His Tyr Leu Pro Ala Arg Val Met Glu
725 730 735

Lys Leu Asp Leu Ser Tyr Ile Lys Glu Glu Leu Pro Lys Leu His Asn
740 745 750

Thr Tyr Val Gly Ala Ser Glu Lys Glu Thr Glu Leu Glu Phe Leu Lys
755 760 765

Val Cys Gln Arg Leu Thr Glu Tyr Gly Val His Phe His Arg Val His
770 775 780

Pro Glu Lys Lys Ser Gln Thr Gly Ile Leu Leu Gly Val Cys Ser Lys
785 790 795 800

Gly Val Leu Val Phe Glu Val His Asn Gly Val Arg Thr Leu Val Leu
805 810 815

Arg Phe Pro Trp Arg Glu Thr Lys Lys Ile Ser Phe Ser Lys Lys Lys
820 825 830

Ile Thr Leu Gln Asn Thr Ser Asp Gly Ile Lys His Gly Phe Gln Thr
835 840 845

Asp Asn Ser Lys Ile Cys Gln Tyr Leu Leu His Leu Cys Ser Tyr Gln
850 855 860

His Lys Phe Gln Leu Gln Met Arg Ala Arg Gln Ser Asn Gln Asp Ala
865 870 875 880

Gln Asp Ile Glu Arg Ala Ser Phe Arg Ser Leu Asn Leu Gln Ala Glu
885 890 895

Ser Val Arg Gly Phe Asn Met Gly Arg Ala Ile Ser Thr Gly Ser Leu
900 905 910

Ala Ser Ser Thr Leu Asn Lys Leu Ala Val Arg Pro Leu Ser Val Gln
915 920 925

Ala Glu Ile Leu Lys Arg Leu Ser Cys Ser Glu Leu Ser Leu Tyr Gln
930 935 940

Pro Leu Gln Asn Ser Ser Lys Glu Lys Asn Asp Lys Ala Ser Trp Glu
945 950 955 960

Glu Lys Pro Arg Glu Met Ser Lys Ser Tyr His Asp Leu Ser Gln Ala
965 970 975

Ser Leu Tyr Pro His Arg Lys Asn Val Ile Val Asn Met Glu Pro Pro
980 985 990

Pro Gln Thr Val Ala Glu Leu Val Gly Lys Pro Ser His Gln Met Ser
995 1000 1005

Arg Ser Asp Ala Glu Ser Leu Ala Gly Val Thr Lys Leu Asn Asn
1010 1015 1020

Ser Lys Ser Val Ala Ser Leu Asn Arg Ser Pro Glu Arg Arg Lys
1025 1030 1035

His Glu Ser Asp Ser Ser Ser Ile Glu Asp Pro Gly Gln Ala Tyr
1040 1045 1050

Val Leu Gly Met Thr Met His Ser Ser Gly Asn Ser Ser Ser Gln
1055 1060 1065

Val Pro Leu Lys Glu Asn Asp Val Leu His Lys Arg Trp Ser Ile
1070 1075 1080

Val Ser Ser Pro Glu Arg Glu Ile Thr Leu Val Asn Leu Lys Lys
1085 1090 1095

Asp Ala Lys Tyr Gly Leu Gly Phe Gln Ile Ile Gly Gly Glu Lys
1100 1105 1110

Met Gly Arg Leu Asp Leu Gly Ile Phe Ile Ser Ser Val Ala Pro
1115 1120 1125

Gly Gly Pro Ala Asp Leu Asp Gly Cys Leu Lys Pro Gly Asp Arg
1130 1135 1140

Leu Ile Ser Val Asn Ser Val Ser Leu Glu Gly Val Ser His His
1145 1150 1155

Ala Ala Ile Glu Ile Leu Gln Asn Ala Pro Glu Asp Val Thr Leu
1160 1165 1170

Val Ile Ser Gln Pro Lys Glu Lys Ile Ser Lys Val Pro Ser Thr
1175 1180 1185

Pro Val His Leu Thr Asn Glu Met Lys Asn Tyr Met Lys Lys Ser
1190 1195 1200

Ser Tyr Met Gln Asp Ser Ala Ile Asp Ser Ser Ser Lys Asp His
1205 1210 1215

His Trp Ser Arg Gly Thr Leu Arg His Ile Ser Glu Asn Ser Phe
1220 1225 1230

Gly Pro Ser Gly Gly Leu Arg Glu Gly Ser Leu Ser Ser Gln Asp
1235 1240 1245

Ser Arg Thr Glu Ser Ala Ser Leu Ser Gln Ser Gln Val Asn Gly
1250 1255 1260

Phe Phe Ala Ser His Leu Gly Asp Gln Thr Trp Gln Glu Ser Gln
1265 1270 1275

His Gly Ser Pro Ser Pro Ser Val Ile Ser Lys Ala Thr Glu Lys
1280 1285 1290

Glu Thr Phe Thr Asp Ser Asn Gln Ser Lys Thr Lys Lys Pro Gly
1295 1300 1305

Ile Ser Asp Val Thr Asp Tyr Ser Asp Arg Gly Asp Ser Asp Met
1310 1315 1320

Asp Glu Ala Thr Tyr Ser Ser Ser Gln Asp His Gln Thr Pro Lys
1325 1330 1335

Gln Glu Ser Ser Ser Ser Val Asn Thr Ser Asn Lys Met Asn Phe
1340 1345 1350

Lys Thr Phe Ser Ser Ser Pro Pro Lys Pro Gly Asp Ile Phe Glu
1355 1360 1365

Val	Glu	Leu	Ala	Lys	Asn	Asp	Asn	Ser	Leu	Gly	Ile	Ser	Val	Thr
1370						1375					1380			
Val	Leu	Phe	Asp	Lys	Gly	Gly	Val	Asn	Thr	Ser	Val	Arg	His	Gly
1385						1390					1395			
Gly	Ile	Tyr	Val	Lys	Ala	Val	Ile	Pro	Gln	Gly	Ala	Ala	Glu	Ser
1400						1405					1410			
Asp	Gly	Arg	Ile	His	Lys	Gly	Asp	Arg	Val	Leu	Ala	Val	Asn	Gly
1415						1420					1425			
Val	Ser	Leu	Glu	Gly	Ala	Thr	His	Lys	Gln	Ala	Val	Glu	Thr	Leu
1430						1435					1440			
Arg	Asn	Thr	Gly	Gln	Val	Val	His	Leu	Leu	Leu	Glu	Lys	Gly	Gln
1445						1450					1455			
Ser	Pro	Thr	Ser	Lys	Glu	His	Val	Pro	Val	Thr	Pro	Gln	Cys	Thr
1460						1465					1470			
Leu	Ser	Asp	Gln	Asn	Ala	Gln	Gly	Gln	Gly	Pro	Glu	Lys	Val	Lys
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Lys	Thr	Thr	Gln	Val	Lys	Asp	Tyr	Ser	Phe	Val	Thr	Glu	Glu	Asn
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Thr	Phe	Glu	Val	Lys	Leu	Phe	Lys	Asn	Ser	Ser	Gly	Leu	Gly	Phe
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Ser	Phe	Ser	Arg	Glu	Asp	Asn	Leu	Ile	Pro	Glu	Gln	Ile	Asn	Ala
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Ser	Ile	Val	Arg	Val	Lys	Lys	Leu	Phe	Pro	Gly	Gln	Pro	Ala	Ala
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Glu	Ser	Gly	Lys	Ile	Asp	Val	Gly	Asp	Val	Ile	Leu	Lys	Val	Asn
1550						1555					1560			
Gly	Ala	Ser	Leu	Lys	Gly	Leu	Ser	Gln	Gln	Glu	Val	Ile	Ser	Ala
1565						1570					1575			
Leu	Arg	Gly	Thr	Ala	Pro	Glu	Val	Phe	Leu	Leu	Leu	Cys	Arg	Pro
1580						1585					1590			
Pro	Pro	Gly	Val	Leu	Pro	Glu	Ile	Asp	Thr	Ala	Leu	Leu	Thr	Pro
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Leu	Gln	Ser	Pro	Ala	Gln	Val	Leu	Pro	Asn	Ser	Ser	Lys	Asp	Ser
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1625						1630					1635			
Glu	Met	Ser	Asp	Lys	Ser	Lys	Lys	Gln	Cys	Lys	Ser	Pro	Ser	Arg
1640						1645					1650			
Arg	Asp	Ser	Tyr	Ser	Asp	Ser	Ser	Gly	Ser	Gly	Glu	Asp	Asp	Leu
1655						1660					1665			
Val	Thr	Ala	Pro	Ala	Asn	Ile	Ser	Asn	Ser	Thr	Trp	Ser	Ser	Ala
1670						1675					1680			
Leu	His	Gln	Thr	Leu	Ser	Asn	Met	Val	Ser	Gln	Ala	Gln	Ser	His
1685						1690					1695			
His	Glu	Ala	Pro	Lys	Ser	Gln	Glu	Asp	Thr	Ile	Cys	Thr	Met	Phe
1700						1705					1710			
Tyr	Tyr	Pro	Gln	Lys	Ile	Pro	Asn	Lys	Pro	Glu	Phe	Glu	Asp	Ser
1715						1720					1725			
Asn	Pro	Ser	Pro	Leu	Pro	Pro	Asp	Met	Ala	Pro	Gly	Gln	Ser	Tyr
1730						1735					1740			
Gln	Pro	Gln	Ser	Glu	Ser	Ala	Ser	Ser	Ser	Ser	Met	Asp	Lys	Tyr
1745						1750					1755			
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1775						1780					1785			
Glu	Val	Glu	Leu	Leu	Ile	Thr	Leu	Ile	Lys	Ser	Glu	Lys	Gly	Ser
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Leu	Gly	Phe	Thr	Val	Thr	Lys	Gly	Asn	Gln	Arg	Ile	Gly	Cys	Tyr
1805						1810					1815			
Val	His	Asp	Val	Ile	Gln	Asp	Pro	Ala	Lys	Ser	Asp	Gly	Arg	Leu
1820						1825					1830			
Lys	Pro	Gly	Asp	Arg	Leu	Ile	Lys	Val	Asn	Asp	Thr	Asp	Val	Thr
1835						1840					1845			

Asn	Met	Thr	His	Thr	Asp	Ala	Val	Asn	Leu	Leu	Arg	Ala	Ala	Ser
1850						1855					1860			
Lys	Thr	Val	Arg	Leu	Val	Ile	Gly	Arg	Val	Leu	Glu	Leu	Pro	Arg
1865						1870					1875			
Ile	Pro	Met	Leu	Pro	His	Leu	Leu	Pro	Asp	Ile	Thr	Leu	Thr	Cys
1880						1885					1890			
Asn	Lys	Glu	Glu	Leu	Gly	Phe	Ser	Leu	Cys	Gly	Gly	His	Asp	Ser
1895						1900					1905			
Leu	Tyr	Gln	Val	Val	Tyr	Ile	Ser	Asp	Ile	Asn	Pro	Arg	Ser	Val
1910						1915					1920			
Ala	Ala	Ile	Glu	Gly	Asn	Leu	Gln	Leu	Leu	Asp	Val	Ile	His	Tyr
1925						1930					1935			
Val	Asn	Gly	Val	Ser	Thr	Gln	Gly	Met	Thr	Leu	Glu	Glu	Val	Asn
1940						1945					1950			
Arg	Ala	Leu	Asp	Met	Ser	Leu	Pro	Ser	Leu	Val	Leu	Lys	Ala	Thr
1955						1960					1965			
Arg	Asn	Asp	Leu	Pro	Val	Val	Pro	Ser	Ser	Lys	Arg	Ser	Ala	Val
1970						1975					1980			
Ser	Ala	Pro	Lys	Ser	Thr	Lys	Gly	Asn	Gly	Ser	Tyr	Ser	Val	Gly
1985						1990					1995			
Ser	Cys	Ser	Gln	Pro	Ala	Leu	Thr	Pro	Asn	Asp	Ser	Phe	Ser	Thr
2000						2005					2010			
Val	Ala	Gly	Glu	Glu	Ile	Asn	Glu	Ile	Ser	Tyr	Pro	Lys	Gly	Lys
2015						2020					2025			
Cys	Ser	Thr	Tyr	Gln	Ile	Lys	Gly	Ser	Pro	Asn	Leu	Thr	Leu	Pro
2030						2035					2040			
Lys	Glu	Ser	Tyr	Ile	Gln	Glu	Asp	Asp	Ile	Tyr	Asp	Asp	Ser	Gln
2045						2050					2055			
Glu	Ala	Glu	Val	Ile	Gln	Ser	Leu	Leu	Asp	Val	Val	Asp	Glu	Glu
2060						2065					2070			
Ala	Gln	Asn	Leu	Leu	Asn	Glu	Asn	Asn	Ala	Ala	Gly	Tyr	Ser	Cys
2075						2080					2085			

Gly	Pro	Gly	Thr	Leu	Lys	Met	Asn	Gly	Lys	Leu	Ser	Glu	Glu	Arg
2090						2095					2100			
Thr	Glu	Asp	Thr	Asp	Cys	Asp	Gly	Ser	Pro	Leu	Pro	Glu	Tyr	Phe
2105						2110					2115			
Thr	Glu	Ala	Thr	Lys	Met	Asn	Gly	Cys	Glu	Glu	Tyr	Cys	Glu	Glu
2120						2125					2130			
Lys	Val	Lys	Ser	Glu	Ser	Leu	Ile	Gln	Lys	Pro	Gln	Glu	Lys	Lys
2135						2140					2145			
Thr	Asp	Asp	Asp	Glu	Ile	Thr	Trp	Gly	Asn	Asp	Glu	Leu	Pro	Ile
2150						2155					2160			
Glu	Arg	Thr	Asn	His	Glu	Asp	Ser	Asp	Lys	Asp	His	Ser	Phe	Leu
2165						2170					2175			
Thr	Asn	Asp	Glu	Leu	Ala	Val	Leu	Pro	Val	Val	Lys	Val	Leu	Pro
2180						2185					2190			
Ser	Gly	Lys	Tyr	Thr	Gly	Ala	Asn	Leu	Lys	Ser	Val	Ile	Arg	Val
2195						2200					2205			
Leu	Arg	Gly	Leu	Leu	Asp	Gln	Gly	Ile	Pro	Ser	Lys	Glu	Leu	Glu
2210						2215					2220			
Asn	Leu	Gln	Glu	Leu	Lys	Pro	Leu	Asp	Gln	Cys	Leu	Ile	Gly	Gln
2225						2230					2235			
Thr	Lys	Glu	Asn	Arg	Arg	Lys	Asn	Arg	Tyr	Lys	Asn	Ile	Leu	Pro
2240						2245					2250			
Tyr	Asp	Ala	Thr	Arg	Val	Pro	Leu	Gly	Asp	Glu	Gly	Gly	Tyr	Ile
2255						2260					2265			
Asn	Ala	Ser	Phe	Ile	Lys	Ile	Pro	Val	Gly	Lys	Glu	Glu	Phe	Val
2270						2275					2280			
Tyr	Ile	Ala	Cys	Gln	Gly	Pro	Leu	Pro	Thr	Thr	Val	Gly	Asp	Phe
2285						2290					2295			
Trp	Gln	Met	Ile	Trp	Glu	Gln	Lys	Ser	Thr	Val	Ile	Ala	Met	Met
2300						2305					2310			
Thr	Gln	Glu	Val	Glu	Gly	Glu	Lys	Ile	Lys	Cys	Gln	Arg	Tyr	Trp
2315						2320					2325			

Pro Asn Ile Leu Gly Lys Thr Thr Met Val Ser Asn Arg Leu Arg
2330 2335 2340

Leu Ala Leu Val Arg Met Gln Gln Leu Lys Gly Phe Val Val Arg
2345 2350 2355

Ala Met Thr Leu Glu Asp Ile Gln Thr Arg Glu Val Arg His Ile
2360 2365 2370

Ser His Leu Asn Phe Thr Ala Trp Pro Asp His Asp Thr Pro Ser
2375 2380 2385

Gln Pro Asp Asp Leu Leu Thr Phe Ile Ser Tyr Met Arg His Ile
2390 2395 2400

His Arg Ser Gly Pro Ile Ile Thr His Cys Ser Ala Gly Ile Gly
2405 2410 2415

Arg Ser Gly Thr Leu Ile Cys Ile Asp Val Val Leu Gly Leu Ile
2420 2425 2430

Ser Gln Asp Leu Asp Phe Asp Ile Ser Asp Leu Val Arg Cys Met
2435 2440 2445

Arg Leu Gln Arg His Gly Met Val Gln Thr Glu Asp Gln Tyr Ile
2450 2455 2460

Phe Cys Tyr Gln Val Ile Leu Tyr Val Leu Thr Arg Leu Gln Ala
2465 2470 2475

Glu Glu Glu Gln Lys Gln Gln Pro Gln Leu Leu Lys
2480 2485 2490

<210> 5
<211> 2466
<212> PRT
<213> Homo sapiens

<400> 5

Met His Val Ser Leu Ala Glu Ala Leu Glu Val Arg Gly Gly Pro Leu
1 5 10 15

Gln Glu Glu Glu Ile Trp Ala Val Leu Asn Gln Ser Ala Glu Ser Leu
20 25 30

Gln Glu Leu Phe Arg Lys Val Ser Leu Ala Asp Pro Ala Ala Leu Gly
35 40 45

Phe Ile Ile Ser Pro Trp Ser Leu Leu Leu Leu Pro Ser Gly Ser Val

50		55		60
Ser Phe Thr Asp Glu Asn Ile Ser Asn Gln Asp Leu Arg Ala Phe Thr				
65		70		75
Ala Pro Glu Val Leu Gln Asn Gln Ser Leu Thr Ser Leu Ser Asp Val				
	85		90	95
Glu Lys Ile His Ile Tyr Ser Leu Gly Met Thr Leu Tyr Trp Gly Ala				
	100		105	110
Asp Tyr Glu Val Pro Gln Ser Gln Pro Ile Lys Leu Gly Asp His Leu				
	115		120	125
Asn Ser Ile Leu Leu Gly Met Cys Glu Asp Val Ile Tyr Ala Arg Val				
	130		135	140
Ser Val Arg Thr Val Leu Asp Ala Cys Ser Ala His Ile Arg Asn Ser				
145		150		155
Asn Cys Ala Pro Ser Phe Ser Tyr Val Lys His Leu Val Lys Leu Val				
	165		170	175
Leu Gly Asn Leu Ser Gly Thr Asp Gln Leu Ser Cys Asn Ser Glu Gln				
	180		185	190
Lys Pro Asp Arg Ser Gln Ala Ile Arg Asp Arg Leu Arg Gly Lys Gly				
	195		200	205
Leu Pro Thr Gly Arg Ser Ser Thr Ser Asp Val Leu Asp Ile Gln Lys				
	210		215	220
Pro Pro Leu Ser His Gln Thr Phe Leu Asn Lys Gly Leu Ser Lys Ser				
225		230		235
Met Gly Phe Leu Ser Ile Lys Asp Thr Gln Asp Glu Asn Tyr Phe Lys				
	245		250	255
Asp Ile Leu Ser Asp Asn Ser Gly Arg Glu Asp Ser Glu Asn Thr Phe				
	260		265	270
Ser Pro Tyr Gln Phe Lys Thr Ser Gly Pro Glu Lys Lys Pro Ile Pro				
	275		280	285
Gly Ile Asp Val Leu Ser Lys Lys Lys Ile Trp Ala Ser Ser Met Asp				
	290		295	300
Leu Leu Cys Thr Ala Asp Arg Asp Phe Ser Ser Gly Glu Thr Ala Thr				

305		310		315		320
Tyr Arg Arg Cys His Pro Glu Ala Val Thr Val Arg Thr Ser Thr Thr		325		330		335
Pro Arg Lys Lys Glu Ala Arg Tyr Ser Asp Gly Ser Ile Ala Leu Asp		340		345		350
Ile Phe Gly Pro Gln Lys Met Asp Pro Ile Tyr His Thr Arg Glu Leu		355		360		365
Pro Thr Ser Ser Ala Ile Ser Ser Ala Leu Asp Arg Ile Arg Glu Arg		370		375		380
Gln Lys Lys Leu Gln Val Leu Arg Glu Ala Met Asn Val Glu Glu Pro		385		390		395
Val Arg Arg Tyr Lys Thr Tyr His Gly Asp Val Phe Ser Thr Ser Ser		405		410		415
Glu Ser Pro Ser Ile Ile Ser Ser Glu Ser Asp Phe Arg Gln Val Arg		420		425		430
Arg Ser Glu Ala Ser Lys Arg Phe Glu Ser Ser Ser Gly Leu Pro Gly		435		440		445
Val Asp Glu Thr Leu Ser Gln Gly Gln Ser Gln Arg Pro Ser Arg Gln		450		455		460
Tyr Glu Thr Pro Phe Glu Gly Asn Leu Ile Asn Gln Glu Ile Met Leu		465		470		475
Lys Arg Gln Glu Glu Glu Leu Met Gln Leu Gln Ala Lys Met Ala Leu		485		490		495
Arg Gln Ser Arg Leu Ser Leu Tyr Pro Gly Asp Thr Ile Lys Ala Ser		500		505		510
Met Leu Asp Ile Thr Arg Asp Pro Leu Arg Glu Ile Ala Leu Glu Thr		515		520		525
Ala Met Thr Gln Arg Lys Leu Arg Asn Phe Phe Gly Pro Glu Phe Val		530		535		540
Lys Met Thr Ile Glu Pro Phe Ile Ser Leu Asp Leu Pro Arg Ser Ile		545		550		555
Leu Thr Lys Lys Gly Lys Asn Glu Asp Asn Arg Arg Lys Val Asn Ile						

565	570	575
Met Leu Leu Asn Gly Gln Arg Leu Glu Leu Thr Cys Asp Thr Lys Thr		
580	585	590
Ile Cys Lys Asp Val Phe Asp Met Val Val Ala His Ile Gly Leu Val		
595	600	605
Glu His His Leu Phe Ala Leu Ala Thr Leu Lys Asp Asn Glu Tyr Phe		
610	615	620
Phe Val Asp Pro Asp Leu Lys Leu Thr Lys Val Ala Pro Glu Gly Trp		
625	630	635 640
Lys Glu Glu Pro Lys Lys Lys Thr Lys Ala Thr Val Asn Phe Thr Leu		
645	650	655
Phe Phe Arg Ile Lys Phe Phe Met Asp Asp Val Ser Leu Ile Gln His		
660	665	670
Thr Leu Thr Cys His Gln Tyr Tyr Leu Gln Leu Arg Lys Asp Ile Leu		
675	680	685
Glu Glu Arg Met His Cys Asp Asp Glu Thr Ser Leu Leu Leu Ala Ser		
690	695	700
Leu Ala Leu Gln Ala Glu Tyr Gly Asp Tyr Gln Pro Glu Val His Gly		
705	710	715 720
Val Ser Tyr Phe Arg Met Glu His Tyr Leu Pro Ala Arg Val Met Glu		
725	730	735
Lys Leu Asp Leu Ser Tyr Ile Lys Glu Glu Leu Pro Lys Leu His Asn		
740	745	750
Thr Tyr Val Gly Ala Ser Glu Lys Glu Thr Glu Leu Glu Phe Leu Lys		
755	760	765
Val Cys Gln Arg Leu Thr Glu Tyr Gly Val His Phe His Arg Val His		
770	775	780
Pro Glu Lys Lys Ser Gln Thr Gly Ile Leu Leu Gly Val Cys Ser Lys		
785	790	795 800
Gly Val Leu Val Phe Glu Val His Asn Gly Val Arg Thr Leu Val Leu		
805	810	815
Arg Phe Pro Trp Arg Glu Thr Lys Lys Ile Ser Phe Ser Lys Lys Lys		

820	825	830
Ile Thr Leu Gln Asn Thr Ser Asp Gly Ile Lys His Gly Phe Gln Thr 835 840 845		
Asp Asn Ser Lys Ile Cys Gln Tyr Leu Leu His Leu Cys Ser Tyr Gln 850 855 860		
His Lys Phe Gln Leu Gln Met Arg Ala Arg Gln Ser Asn Gln Asp Ala 865 870 875 880		
Gln Asp Ile Glu Arg Ala Ser Phe Arg Ser Leu Asn Leu Gln Ala Glu 885 890 895		
Ser Val Arg Gly Phe Asn Met Gly Arg Ala Ile Ser Thr Gly Ser Leu 900 905 910		
Ala Ser Ser Thr Leu Asn Lys Leu Ala Val Arg Pro Leu Ser Val Gln 915 920 925		
Ala Glu Ile Leu Lys Arg Leu Ser Cys Ser Glu Leu Ser Leu Tyr Gln 930 935 940		
Pro Leu Gln Asn Ser Ser Lys Glu Lys Asn Asp Lys Ala Ser Trp Glu 945 950 955 960		
Glu Lys Pro Arg Glu Met Ser Lys Ser Tyr His Asp Leu Ser Gln Ala 965 970 975		
Ser Leu Tyr Pro His Arg Lys Asn Val Ile Val Asn Met Glu Pro Pro 980 985 990		
Pro Gln Thr Val Ala Glu Leu Val Gly Lys Pro Ser His Gln Met Ser 995 1000 1005		
Arg Ser Asp Ala Glu Ser Leu Ala Gly Val Thr Lys Leu Asn Asn 1010 1015 1020		
Ser Lys Ser Val Ala Ser Leu Asn Arg Ser Pro Glu Arg Arg Lys 1025 1030 1035		
His Glu Ser Asp Ser Ser Ser Ile Glu Asp Pro Gly Gln Ala Tyr 1040 1045 1050		
Val Leu Asp Val Leu His Lys Arg Trp Ser Ile Val Ser Ser Pro 1055 1060 1065		
Glu Arg Glu Ile Thr Leu Val Asn Leu Lys Lys Asp Ala Lys Tyr		

1070	1075	1080
Gly Leu 1085	Gly Phe Gln Ile Ile 1090	Gly Gly Glu Lys Met 1095
Asp Leu 1100	Gly Ile Phe Ile Ser 1105	Gly Gly Pro Ala 1110
Asp Leu 1115	Asp Gly Cys Leu Lys 1120	Pro Gly Asp Arg Leu 1125
Asn Ser 1130	Val Ser Leu Glu Gly 1135	Val Ser His His Ala 1140
Ile Leu 1145	Gln Asn Ala Pro Glu 1150	Asp Val Thr Leu Val 1155
Pro Lys 1160	Glu Lys Ile Ser Lys 1165	Val Pro Ser Thr Pro 1170
Thr Asn 1175	Glu Met Lys Asn Tyr 1180	Met Lys Lys Ser Ser 1185
Asp Ser 1190	Ala Ile Asp Ser Ser 1195	Ser Lys Asp His His 1200
Gly Thr 1205	Leu Arg His Ile Ser 1210	Glu Asn Ser Phe Gly 1215
Gly Leu 1220	Arg Glu Gly Ser Leu 1225	Ser Ser Gln Asp Ser 1230
Ser Ala 1235	Ser Leu Ser Gln Ser 1240	Gln Val Asn Gly Phe 1245
His Leu 1250	Gly Asp Gln Thr Trp 1255	Gln Glu Ser Gln His 1260
Ser Pro 1265	Ser Val Ile Ser Lys 1270	Ala Thr Glu Lys Glu 1275
Asp Ser 1280	Asn Gln Ser Lys Thr 1285	Lys Lys Pro Gly Ile 1290
Thr Asp 1295	Tyr Ser Asp Arg Gly 1300	Asp Ser Asp Met Asp 1305
Tyr Ser	Ser Ser Gln Asp His	Gln Thr Pro Lys Gln Glu Ser Ser

1310		1315		1320
Ser Ser Val Asn Thr Ser Asn Lys Met Asn Phe Lys Thr Phe Ser				
1325		1330		1335
Ser Ser Pro Pro Lys Pro Gly Asp Ile Phe Glu Val Glu Leu Ala				
1340		1345		1350
Lys Asn Asp Asn Ser Leu Gly Ile Ser Val Thr Gly Gly Val Asn				
1355		1360		1365
Thr Ser Val Arg His Gly Gly Ile Tyr Val Lys Ala Val Ile Pro				
1370		1375		1380
Gln Gly Ala Ala Glu Ser Asp Gly Arg Ile His Lys Gly Asp Arg				
1385		1390		1395
Val Leu Ala Val Asn Gly Val Ser Leu Glu Gly Ala Thr His Lys				
1400		1405		1410
Gln Ala Val Glu Thr Leu Arg Asn Thr Gly Gln Val Val His Leu				
1415		1420		1425
Leu Leu Glu Lys Gly Gln Ser Pro Thr Ser Lys Glu His Val Pro				
1430		1435		1440
Val Thr Pro Gln Cys Thr Leu Ser Asp Gln Asn Ala Gln Gly Gln				
1445		1450		1455
Gly Pro Glu Lys Val Lys Lys Thr Thr Gln Val Lys Asp Tyr Ser				
1460		1465		1470
Phe Val Thr Glu Glu Asn Thr Phe Glu Val Lys Leu Phe Lys Asn				
1475		1480		1485
Ser Ser Gly Leu Gly Phe Ser Phe Ser Arg Glu Asp Asn Leu Ile				
1490		1495		1500
Pro Glu Gln Ile Asn Ala Ser Ile Val Arg Val Lys Lys Leu Phe				
1505		1510		1515
Pro Gly Gln Pro Ala Ala Glu Ser Gly Lys Ile Asp Val Gly Asp				
1520		1525		1530
Val Ile Leu Lys Val Asn Gly Ala Ser Leu Lys Gly Leu Ser Gln				
1535		1540		1545
Gln Glu Val Ile Ser Ala Leu Arg Gly Thr Ala Pro Glu Val Phe				

1550		1555		1560
Leu Leu Leu Cys Arg Pro Pro Pro Gly Val Leu Pro Glu Ile Asp				
1565		1570		1575
Thr Ala Leu Leu Thr Pro Leu Gln Ser Pro Ala Gln Val Leu Pro				
1580		1585		1590
Asn Ser Ser Lys Asp Ser Ser Gln Pro Ser Cys Val Glu Gln Ser				
1595		1600		1605
Thr Ser Ser Asp Glu Asn Glu Met Ser Asp Lys Ser Lys Lys Gln				
1610		1615		1620
Cys Lys Ser Pro Ser Arg Arg Asp Ser Tyr Ser Asp Ser Ser Gly				
1625		1630		1635
Ser Gly Glu Asp Asp Leu Val Thr Ala Pro Ala Asn Ile Ser Asn				
1640		1645		1650
Ser Thr Trp Ser Ser Ala Leu His Gln Thr Leu Ser Asn Met Val				
1655		1660		1665
Ser Gln Ala Gln Ser His His Glu Ala Pro Lys Ser Gln Glu Asp				
1670		1675		1680
Thr Ile Cys Thr Met Phe Tyr Tyr Pro Gln Lys Ile Pro Asn Lys				
1685		1690		1695
Pro Glu Phe Glu Asp Ser Asn Pro Ser Pro Leu Pro Pro Asp Met				
1700		1705		1710
Ala Pro Gly Gln Ser Tyr Gln Pro Gln Ser Glu Ser Ala Ser Ser				
1715		1720		1725
Ser Ser Met Asp Lys Tyr His Ile His His Ile Ser Glu Pro Thr				
1730		1735		1740
Arg Gln Glu Asn Trp Thr Pro Leu Lys Asn Asp Leu Glu Asn His				
1745		1750		1755
Leu Glu Asp Phe Glu Leu Glu Val Glu Leu Leu Ile Thr Leu Ile				
1760		1765		1770
Lys Ser Glu Lys Gly Ser Leu Gly Phe Thr Val Thr Lys Gly Asn				
1775		1780		1785
Gln Arg Ile Gly Cys Tyr Val His Asp Val Ile Gln Asp Pro Ala				

1790		1795		1800
Lys Ser Asp Gly Arg Leu	Lys Pro Gly Asp Arg Leu	Ile Lys Val		
1805	1810	1815		
Asn Asp Thr Asp Val Thr	Asn Met Thr His Thr Asp	Ala Val Asn		
1820	1825	1830		
Leu Leu Arg Ala Ala Ser	Lys Thr Val Arg Leu Val	Ile Gly Arg		
1835	1840	1845		
Val Leu Glu Leu Pro Arg	Ile Pro Met Leu Pro His	Leu Leu Pro		
1850	1855	1860		
Asp Ile Thr Leu Thr Cys	Asn Lys Glu Glu Leu Gly	Phe Ser Leu		
1865	1870	1875		
Cys Gly Gly His Asp Ser	Leu Tyr Gln Val Val Tyr	Ile Ser Asp		
1880	1885	1890		
Ile Asn Pro Arg Ser Val	Ala Ala Ile Glu Gly Asn	Leu Gln Leu		
1895	1900	1905		
Leu Asp Val Ile His Tyr	Val Asn Gly Val Ser Thr	Gln Gly Met		
1910	1915	1920		
Thr Leu Glu Glu Val Asn	Arg Ala Leu Asp Met Ser	Leu Pro Ser		
1925	1930	1935		
Leu Val Leu Lys Ala Thr	Arg Asn Asp Leu Pro Val	Val Pro Ser		
1940	1945	1950		
Ser Lys Arg Ser Ala Val	Ser Ala Pro Lys Ser Thr	Lys Gly Asn		
1955	1960	1965		
Gly Ser Tyr Ser Val Gly	Ser Cys Ser Gln Pro Ala	Leu Thr Pro		
1970	1975	1980		
Asn Asp Ser Phe Ser Thr	Val Ala Gly Glu Glu Ile	Asn Glu Ile		
1985	1990	1995		
Ser Tyr Pro Lys Gly Lys	Cys Ser Thr Tyr Gln Ile	Lys Gly Ser		
2000	2005	2010		
Pro Asn Leu Thr Leu Pro	Lys Glu Ser Tyr Ile Gln	Glu Asp Asp		
2015	2020	2025		
Ile Tyr Asp Asp Ser Gln	Glu Ala Glu Val Ile Gln	Ser Leu Leu		

2030	2035	2040
Asp Val Val Asp Glu Glu 2045	Ala Gln Asn Leu Leu 2050	Asn Glu Asn Asn 2055
Ala Ala Gly Tyr Ser Cys 2060	Gly Pro Gly Thr Leu 2065	Lys Met Asn Gly 2070
Lys Leu Ser Glu Glu Arg 2075	Thr Glu Asp Thr Asp 2080	Cys Asp Gly Ser 2085
Pro Leu Pro Glu Tyr Phe 2090	Thr Glu Ala Thr Lys 2095	Met Asn Gly Cys 2100
Glu Glu Tyr Cys Glu Glu 2105	Lys Val Lys Ser Glu 2110	Ser Leu Ile Gln 2115
Lys Pro Gln Glu Lys Lys 2120	Thr Asp Asp Asp Glu 2125	Ile Thr Trp Gly 2130
Asn Asp Glu Leu Pro Ile 2135	Glu Arg Thr Asn His 2140	Glu Asp Ser Asp 2145
Lys Asp His Ser Phe Leu 2150	Thr Asn Asp Glu Leu 2155	Ala Val Leu Pro 2160
Val Val Lys Val Leu Pro 2165	Ser Gly Lys Tyr Thr 2170	Gly Ala Asn Leu 2175
Lys Ser Val Ile Arg Val 2180	Leu Arg Gly Leu Leu 2185	Asp Gln Gly Ile 2190
Pro Ser Lys Glu Leu Glu 2195	Asn Leu Gln Glu Leu 2200	Lys Pro Leu Asp 2205
Gln Cys Leu Ile Gly Gln -2210	Thr Lys Glu Asn Arg 2215	Arg Lys Asn Arg 2220
Tyr Lys Asn Ile Leu Pro 2225	Tyr Asp Ala Thr Arg 2230	Val Pro Leu Gly 2235
Asp Glu Gly Gly Tyr Ile 2240	Asn Ala Ser Phe Ile 2245	Lys Ile Pro Val 2250
Gly Lys Glu Glu Phe Val 2255	Tyr Ile Ala Cys Gln 2260	Gly Pro Leu Pro 2265
Thr Thr Val Gly Asp Phe Trp	Gln Met Ile Trp Glu	Gln Lys Ser

Gln Glu Glu Glu Ile Trp Ala Val Leu Asn Gln Ser Ala Glu Ser Leu
20 25 30

Gln Glu Leu Phe Arg Lys Val Ser Leu Ala Asp Pro Ala Ala Leu Gly
35 40 45

Phe Ile Ile Ser Pro Trp Ser Leu Leu Leu Leu Pro Ser Gly Ser Val
50 55 60

Ser Phe Thr Asp Glu Asn Ile Ser Asn Gln Asp Leu Arg Ala Phe Thr
65 70 75 80

Ala Pro Glu Val Leu Gln Asn Gln Ser Leu Thr Ser Leu Ser Asp Val
85 90 95

Glu Lys Ile His Ile Tyr Ser Leu Gly Met Thr Leu Tyr Trp Gly Ala
100 105 110

Asp Tyr Glu Val Pro Gln Ser Gln Pro Ile Lys Leu Gly Asp His Leu
115 120 125

Asn Ser Ile Leu Leu Gly Met Cys Glu Asp Val Ile Tyr Ala Arg Val
130 135 140

Ser Val Arg Thr Val Leu Asp Ala Cys Ser Ala His Ile Arg Asn Ser
145 150 155 160

Asn Cys Ala Pro Ser Phe Ser Tyr Val Lys His Leu Val Lys Leu Val
165 170 175

Leu Gly Asn Leu Ser Gly Thr Asp Gln Leu Ser Cys Asn Ser Glu Gln
180 185 190

Lys Pro Asp Arg Ser Gln Ala Ile Arg Asp Arg Leu Arg Gly Lys Gly
195 200 205

Leu Pro Thr Gly Arg Ser Ser Thr Ser Asp Val Leu Asp Ile Gln Lys
210 215 220

Pro Pro Leu Ser His Gln Thr Phe Leu Asn Lys Gly Leu Ser Lys Ser
225 230 235 240

Met Gly Phe Leu Ser Ile Lys Asp Thr Gln Asp Glu Asn Tyr Phe Lys
245 250 255

Asp Ile Leu Ser Asp Asn Ser Gly Arg Glu Asp Ser Glu Asn Thr Phe
260 265 270

Ser Pro Tyr Gln Phe Lys Thr Ser Gly Pro Glu Lys Lys Pro Ile Pro
 275 280 285

Gly Ile Asp Val Leu Ser Lys Lys Lys Ile Trp Ala Ser Ser Met Asp
 290 295 300

Leu Leu Cys Thr Ala Asp Arg Asp Phe Ser Ser Gly Glu Thr Ala Thr
 305 310 315 320

Tyr Arg Arg Cys His Pro Glu Ala Val Thr Val Arg Thr Ser Thr Thr
 325 330 335

Pro Arg Lys Lys Glu Ala Arg Tyr Ser Asp Gly Ser Ile Ala Leu Asp
 340 345 350

Ile Phe Gly Pro Gln Lys Met Asp Pro Ile Tyr His Thr Arg Glu Leu
 355 360 365

Pro Thr Ser Ser Ala Ile Ser Ser Ala Leu Asp Arg Ile Arg Glu Arg
 370 375 380

Gln Lys Lys Leu Gln Val Leu Arg Glu Ala Met Asn Val Glu Glu Pro
 385 390 395 400

Val Arg Arg Tyr Lys Thr Tyr His Gly Asp Val Phe Ser Thr Ser Ser
 405 410 415

Glu Ser Pro Ser Ile Ile Ser Ser Glu Ser Asp Phe Arg Gln Val Arg
 420 425 430

Arg Ser Glu Ala Ser Lys Arg Phe Glu Ser Ser Ser Gly Leu Pro Gly
 435 440 445

Val Asp Glu Thr Leu Ser Gln Gly Gln Ser Gln Arg Pro Ser Arg Gln
 450 455 460

Tyr Glu Thr Pro Phe Glu Gly Asn Leu Ile Asn Gln Glu Ile Met Leu
 465 470 475 480

Lys Arg Gln Glu Glu Glu Leu Met Gln Leu Gln Ala Lys Met Ala Leu
 485 490 495

Arg Gln Ser Arg Leu Ser Leu Tyr Pro Gly Asp Thr Ile Lys Ala Ser
 500 505 510

Met Leu Asp Ile Thr Arg Asp Pro Leu Arg Glu Ile Ala Leu Glu Thr
 515 520 525

Ala Met Thr Gln Arg Lys Leu Arg Asn Phe Phe Gly Pro Glu Phe Val
530 535 540

Lys Met Thr Ile Glu Pro Phe Ile Ser Leu Asp Leu Pro Arg Ser Ile
545 550 555 560

Leu Thr Lys Lys Gly Lys Asn Glu Asp Asn Arg Arg Lys Val Asn Ile
565 570 575

Met Leu Leu Asn Gly Gln Arg Leu Glu Leu Thr Cys Asp Thr Lys Thr
580 585 590

Ile Cys Lys Asp Val Phe Asp Met Val Val Ala His Ile Gly Leu Val
595 600 605

Glu His His Leu Phe Ala Leu Ala Thr Leu Lys Asp Asn Glu Tyr Phe
610 615 620

Phe Val Asp Pro Asp Leu Lys Leu Thr Lys Val Ala Pro Glu Gly Trp
625 630 635 640

Lys Glu Glu Pro Lys Lys Lys Thr Lys Ala Thr Val Asn Phe Thr Leu
645 650 655

Phe Phe Arg Ile Lys Phe Phe Met Asp Asp Val Ser Leu Ile Gln His
660 665 670

Thr Leu Thr Cys His Gln Tyr Tyr Leu Gln Leu Arg Lys Asp Ile Leu
675 680 685

Glu Glu Arg Met His Cys Asp Asp Glu Thr Ser Leu Leu Leu Ala Ser
690 695 700

Leu Ala Leu Gln Ala Glu Tyr Gly Asp Tyr Gln Pro Glu Val His Gly
705 710 715 720

Val Ser Tyr Phe Arg Met Glu His Tyr Leu Pro Ala Arg Val Met Glu
725 730 735

Lys Leu Asp Leu Ser Tyr Ile Lys Glu Glu Leu Pro Lys Leu His Asn
740 745 750

Thr Tyr Val Gly Ala Ser Glu Lys Glu Thr Glu Leu Glu Phe Leu Lys
755 760 765

Val Cys Gln Arg Leu Thr Glu Tyr Gly Val His Phe His Arg Val His
770 775 780

Pro Glu Lys Lys Ser Gln Thr Gly Ile Leu Leu Gly Val Cys Ser Lys
785 790 795 800

Gly Val Leu Val Phe Glu Val His Asn Gly Val Arg Thr Leu Val Leu
805 810 815

Arg Phe Pro Trp Arg Glu Thr Lys Lys Ile Ser Phe Ser Lys Lys Lys
820 825 830

Ile Thr Leu Gln Asn Thr Ser Asp Gly Ile Lys His Gly Phe Gln Thr
835 840 845

Asp Asn Ser Lys Ile Cys Gln Tyr Leu Leu His Leu Cys Ser Tyr Gln
850 855 860

His Lys Phe Gln Leu Gln Met Arg Ala Arg Gln Ser Asn Gln Asp Ala
865 870 875 880

Gln Asp Ile Glu Arg Ala Ser Phe Arg Ser Leu Asn Leu Gln Ala Glu
885 890 895

Ser Val Arg Gly Phe Asn Met Gly Arg Ala Ile Ser Thr Gly Ser Leu
900 905 910

Ala Ser Ser Thr Leu Asn Lys Leu Ala Val Arg Pro Leu Ser Val Gln
915 920 925

Ala Glu Ile Leu Lys Arg Leu Ser Cys Ser Glu Leu Ser Leu Tyr Gln
930 935 940

Pro Leu Gln Asn Ser Ser Lys Glu Lys Asn Asp Lys Ala Ser Trp Glu
945 950 955 960

Glu Lys Pro Arg Glu Met Ser Lys Ser Tyr His Asp Leu Ser Gln Ala
965 970 975

Ser Leu Tyr Pro His Arg Lys Asn Val Ile Val Asn Met Glu Pro Pro
980 985 990

Pro Gln Thr Val Ala Glu Leu Val Gly Lys Pro Ser His Gln Met Ser
995 1000 1005

Arg Ser Asp Ala Glu Ser Leu Ala Gly Val Thr Lys Leu Asn Asn
1010 1015 1020

Ser Lys Ser Val Ala Ser Leu Asn Arg Ser Pro Glu Arg Arg Lys
1025 1030 1035

His	Glu	Ser	Asp	Ser	Ser	Ser	Ile	Glu	Asp	Pro	Gly	Gln	Ala	Tyr
1040							1045				1050			
Val	Leu	Gly	Met	Thr	Met	His	Ser	Ser	Gly	Asn	Ser	Ser	Ser	Gln
1055						1060					1065			
Val	Pro	Leu	Lys	Glu	Asn	Asp	Val	Leu	His	Lys	Arg	Trp	Ser	Ile
1070						1075					1080			
Val	Ser	Ser	Pro	Glu	Arg	Glu	Ile	Thr	Leu	Val	Asn	Leu	Lys	Lys
1085						1090					1095			
Asp	Ala	Lys	Tyr	Gly	Leu	Gly	Phe	Gln	Ile	Ile	Gly	Gly	Glu	Lys
1100						1105					1110			
Met	Gly	Arg	Leu	Asp	Leu	Gly	Ile	Phe	Ile	Ser	Ser	Val	Ala	Pro
1115						1120					1125			
Gly	Gly	Pro	Ala	Asp	Leu	Asp	Gly	Cys	Leu	Lys	Pro	Gly	Asp	Arg
1130						1135					1140			
Leu	Ile	Ser	Val	Asn	Ser	Val	Ser	Leu	Glu	Gly	Val	Ser	His	His
1145						1150					1155			
Ala	Ala	Ile	Glu	Ile	Leu	Gln	Asn	Ala	Pro	Glu	Asp	Val	Thr	Leu
1160						1165					1170			
Val	Ile	Ser	Gln	Pro	Lys	Glu	Lys	Ile	Ser	Lys	Val	Pro	Ser	Thr
1175						1180					1185			
Pro	Val	His	Leu	Thr	Asn	Glu	Met	Lys	Asn	Tyr	Met	Lys	Lys	Ser
1190						1195					1200			
Ser	Tyr	Met	Gln	Asp	Ser	Ala	Ile	Asp	Ser	Ser	Ser	Lys	Asp	His
1205						1210					1215			
His	Trp	Ser	Arg	Gly	Thr	Leu	Arg	His	Ile	Ser	Glu	Asn	Ser	Phe
1220						1225					1230			
Gly	Pro	Ser	Gly	Gly	Leu	Arg	Glu	Gly	Ser	Leu	Ser	Ser	Gln	Asp
1235						1240					1245			
Ser	Arg	Thr	Glu	Ser	Ala	Ser	Leu	Ser	Gln	Ser	Gln	Val	Asn	Gly
1250						1255					1260			
Phe	Phe	Ala	Ser	His	Leu	Gly	Asp	Gln	Thr	Trp	Gln	Glu	Ser	Gln
1265						1270					1275			

His Gly 1280	Ser Pro Ser Pro Ser	Val Ile Ser Lys Ala	Thr Glu Lys
		1285	1290
Glu Thr 1295	Phe Thr Asp Ser Asn	Gln Ser Lys Thr Lys	Lys Pro Gly
		1300	1305
Ile Ser 1310	Asp Val Thr Asp Tyr	Ser Asp Arg Gly Asp	Ser Asp Met
		1315	1320
Asp Glu 1325	Ala Thr Tyr Ser Ser	Ser Gln Asp His Gln	Thr Pro Lys
		1330	1335
Gln Glu 1340	Ser Ser Ser Ser Val	Asn Thr Ser Asn Lys	Met Asn Phe
		1345	1350
Lys Thr 1355	Phe Ser Ser Ser Pro	Pro Lys Pro Gly Asp	Ile Phe Glu
		1360	1365
Val Glu 1370	Leu Ala Lys Asn Asp	Asn Ser Leu Gly Ile	Ser Val Thr
		1375	1380
Gly Gly 1385	Val Asn Thr Ser Val	Arg His Gly Gly Ile	Tyr Val Lys
		1390	1395
Ala Val 1400	Ile Pro Gln Gly Ala	Ala Glu Ser Asp Gly	Arg Ile His
		1405	1410
Lys Gly 1415	Asp Arg Val Leu Ala	Val Asn Gly Val Ser	Leu Glu Gly
		1420	1425
Ala Thr 1430	His Lys Gln Ala Val	Glu Thr Leu Arg Asn	Thr Gly Gln
		1435	1440
Val Val 1445	His Leu Leu Leu Glu	Lys Gly Gln Ser Pro	Thr Ser Lys
		1450	1455
Glu His 1460	Val Pro Val Thr Pro	Gln Cys Thr Leu Ser	Asp Gln Asn
		1465	1470
Ala Gln 1475	Gly Gln Gly Pro Glu	Lys Val Lys Lys Thr	Thr Gln Val
		1480	1485
Lys Asp 1490	Tyr Ser Phe Val Thr	Glu Glu Asn Thr Phe	Glu Val Lys
		1495	1500
Leu Phe 1505	Lys Asn Ser Ser Gly	Leu Gly Phe Ser Phe	Ser Arg Glu
		1510	1515

Asp Asn Leu Ile Pro Glu Gln Ile Asn Ala Ser Ile Val Arg Val
1520 1525 1530

Lys Lys Leu Phe Pro Gly Gln Pro Ala Ala Glu Ser Gly Lys Ile
1535 1540 1545

Asp Val Gly Asp Val Ile Leu Lys Val Asn Gly Ala Ser Leu Lys
1550 1555 1560

Gly Leu Ser Gln Gln Glu Val Ile Ser Ala Leu Arg Gly Thr Ala
1565 1570 1575

Pro Glu Val Phe Leu Leu Leu Cys Arg Pro Pro Pro Gly Val Leu
1580 1585 1590

Pro Glu Ile Asp Thr Ala Leu Leu Thr Pro Leu Gln Ser Pro Ala
1595 1600 1605

Gln Val Leu Pro Asn Ser Ser Lys Asp Ser Ser Gln Pro Ser Cys
1610 1615 1620

Val Glu Gln Ser Thr Ser Ser Asp Glu Asn Glu Met Ser Asp Lys
1625 1630 1635

Ser Lys Lys Gln Cys Lys Ser Pro Ser Arg Arg Asp Ser Tyr Ser
1640 1645 1650

Asp Ser Ser Gly Ser Gly Glu Asp Asp Leu Val Thr Ala Pro Ala
1655 1660 1665

Asn Ile Ser Asn Ser Thr Trp Ser Ser Ala Leu His Gln Thr Leu
1670 1675 1680

Ser Asn Met Val Ser Gln Ala Gln Ser His His Glu Ala Pro Lys
1685 1690 1695

Ser Gln Glu Asp Thr Ile Cys Thr Met Phe Tyr Tyr Pro Gln Lys
1700 1705 1710

Ile Pro Asn Lys Pro Glu Phe Glu Asp Ser Asn Pro Ser Pro Leu
1715 1720 1725

Pro Pro Asp Met Ala Pro Gly Gln Ser Tyr Gln Pro Gln Ser Glu
1730 1735 1740

Ser Ala Ser Ser Ser Ser Met Asp Lys Tyr His Ile His His Ile
1745 1750 1755

Ser	Glu	Pro	Thr	Arg	Gln	Glu	Asn	Trp	Thr	Pro	Leu	Lys	Asn	Asp
1760						1765					1770			
Leu	Glu	Asn	His	Leu	Glu	Asp	Phe	Glu	Leu	Glu	Val	Glu	Leu	Leu
1775						1780					1785			
Ile	Thr	Leu	Ile	Lys	Ser	Glu	Lys	Gly	Ser	Leu	Gly	Phe	Thr	Val
1790						1795					1800			
Thr	Lys	Gly	Asn	Gln	Arg	Ile	Gly	Cys	Tyr	Val	His	Asp	Val	Ile
1805						1810					1815			
Gln	Asp	Pro	Ala	Lys	Ser	Asp	Gly	Arg	Leu	Lys	Pro	Gly	Asp	Arg
1820						1825					1830			
Leu	Ile	Lys	Val	Asn	Asp	Thr	Asp	Val	Thr	Asn	Met	Thr	His	Thr
1835						1840					1845			
Asp	Ala	Val	Asn	Leu	Leu	Arg	Ala	Ala	Ser	Lys	Thr	Val	Arg	Leu
1850						1855					1860			
Val	Ile	Gly	Arg	Val	Leu	Glu	Leu	Pro	Arg	Ile	Pro	Met	Leu	Pro
1865						1870					1875			
His	Leu	Leu	Pro	Asp	Ile	Thr	Leu	Thr	Cys	Asn	Lys	Glu	Glu	Leu
1880						1885					1890			
Gly	Phe	Ser	Leu	Cys	Gly	Gly	His	Asp	Ser	Leu	Tyr	Gln	Val	Val
1895						1900					1905			
Tyr	Ile	Ser	Asp	Ile	Asn	Pro	Arg	Ser	Val	Ala	Ala	Ile	Glu	Gly
1910						1915					1920			
Asn	Leu	Gln	Leu	Leu	Asp	Val	Ile	His	Tyr	Val	Asn	Gly	Val	Ser
1925						1930					1935			
Thr	Gln	Gly	Met	Thr	Leu	Glu	Glu	Val	Asn	Arg	Ala	Leu	Asp	Met
1940						1945					1950			
Ser	Leu	Pro	Ser	Leu	Val	Leu	Lys	Ala	Thr	Arg	Asn	Asp	Leu	Pro
1955						1960					1965			
Val	Val	Pro	Ser	Ser	Lys	Arg	Ser	Ala	Val	Ser	Ala	Pro	Lys	Ser
1970						1975					1980			
Thr	Lys	Gly	Asn	Gly	Ser	Tyr	Ser	Val	Gly	Ser	Cys	Ser	Gln	Pro
1985						1990					1995			

Ala	Leu	Thr	Pro	Asn	Asp	Ser	Phe	Ser	Thr	Val	Ala	Gly	Glu	Glu
2000						2005					2010			
Ile	Asn	Glu	Ile	Ser	Tyr	Pro	Lys	Gly	Lys	Cys	Ser	Thr	Tyr	Gln
2015						2020					2025			
Ile	Lys	Gly	Ser	Pro	Asn	Leu	Thr	Leu	Pro	Lys	Glu	Ser	Tyr	Ile
2030						2035					2040			
Gln	Glu	Asp	Asp	Ile	Tyr	Asp	Asp	Ser	Gln	Glu	Ala	Glu	Val	Ile
2045						2050					2055			
Gln	Ser	Leu	Leu	Asp	Val	Val	Asp	Glu	Glu	Ala	Gln	Asn	Leu	Leu
2060						2065					2070			
Asn	Glu	Asn	Asn	Ala	Ala	Gly	Tyr	Ser	Cys	Gly	Pro	Gly	Thr	Leu
2075						2080					2085			
Lys	Met	Asn	Gly	Lys	Leu	Ser	Glu	Glu	Arg	Thr	Glu	Asp	Thr	Asp
2090						2095					2100			
Cys	Asp	Gly	Ser	Pro	Leu	Pro	Glu	Tyr	Phe	Thr	Glu	Ala	Thr	Lys
2105						2110					2115			
Met	Asn	Gly	Cys	Glu	Glu	Tyr	Cys	Glu	Glu	Lys	Val	Lys	Ser	Glu
2120						2125					2130			
Ser	Leu	Ile	Gln	Lys	Pro	Gln	Glu	Lys	Lys	Thr	Asp	Asp	Asp	Glu
2135						2140					2145			
Ile	Thr	Trp	Gly	Asn	Asp	Glu	Leu	Pro	Ile	Glu	Arg	Thr	Asn	His
2150						2155					2160			
Glu	Asp	Ser	Asp	Lys	Asp	His	Ser	Phe	Leu	Thr	Asn	Asp	Glu	Leu
2165						2170					2175			
Ala	Val	Leu	Pro	Val	Val	Lys	Val	Leu	Pro	Ser	Gly	Lys	Tyr	Thr
2180						2185					2190			
Gly	Ala	Asn	Leu	Lys	Ser	Val	Ile	Arg	Val	Leu	Arg	Gly	Leu	Leu
2195						2200					2205			
Asp	Gln	Gly	Ile	Pro	Ser	Lys	Glu	Leu	Glu	Asn	Leu	Gln	Glu	Leu
2210						2215					2220			
Lys	Pro	Leu	Asp	Gln	Cys	Leu	Ile	Gly	Gln	Thr	Lys	Glu	Asn	Arg
2225						2230					2235			

Arg Lys	Asn Arg Tyr Lys	Asn	Ile Leu Pro Tyr	Asp	Ala Thr Arg
2240		2245		2250	
Val Pro	Leu Gly Asp Glu	Gly	Gly Tyr Ile Asn	Ala	Ser Phe Ile
2255		2260		2265	
Lys Ile	Pro Val Gly Lys	Glu	Glu Phe Val Tyr	Ile	Ala Cys Gln
2270		2275		2280	
Gly Pro	Leu Pro Thr Thr	Val	Gly Asp Phe Trp	Gln	Met Ile Trp
2285		2290		2295	
Glu Gln	Lys Ser Thr Val	Ile	Ala Met Met Thr	Gln	Glu Val Glu
2300		2305		2310	
Gly Glu	Lys Ile Lys Cys	Gln	Arg Tyr Trp Pro	Asn	Ile Leu Gly
2315		2320		2325	
Lys Thr	Thr Met Val Ser	Asn	Arg Leu Arg Leu	Ala	Leu Val Arg
2330		2335		2340	
Met Gln	Gln Leu Lys Gly	Phe	Val Val Arg Ala	Met	Thr Leu Glu
2345		2350		2355	
Asp Ile	Gln Thr Arg Glu	Val	Arg His Ile Ser	His	Leu Asn Phe
2360		2365		2370	
Thr Ala	Trp Pro Asp His	Asp	Thr Pro Ser Gln	Pro	Asp Asp Leu
2375		2380		2385	
Leu Thr	Phe Ile Ser Tyr	Met	Arg His Ile His	Arg	Ser Gly Pro
2390		2395		2400	
Ile Ile	Thr His Cys Ser	Ala	Gly Ile Gly Arg	Ser	Gly Thr Leu
2405		2410		2415	
Ile Cys	Ile Asp Val Val	Leu	Gly Leu Ile Ser	Gln	Asp Leu Asp
2420		2425		2430	
Phe Asp	Ile Ser Asp Leu	Val	Arg Cys Met Arg	Leu	Gln Arg His
2435		2440		2445	
Gly Met	Val Gln Thr Glu	Asp	Gln Tyr Ile Phe	Cys	Tyr Gln Val
2450		2455		2460	
Ile Leu	Tyr Val Leu Thr	Arg	Leu Gln Ala Glu	Glu	Glu Gln Lys
2465		2470		2475	

Gln Gln Pro Gln Leu Leu Lys
2480 2485

<210> 7
<211> 2490
<212> PRT
<213> Homo sapiens

<400> 7

Met His Val Ser Leu Ala Glu Ala Leu Glu Val Arg Gly Gly Pro Leu
1 5 10 15

Gln Glu Glu Glu Ile Trp Ala Val Leu Asn Gln Ser Ala Glu Ser Leu
20 25 30

Gln Glu Leu Phe Arg Lys Val Ser Leu Ala Asp Pro Ala Ala Leu Gly
35 40 45

Phe Ile Ile Ser Pro Trp Ser Leu Leu Leu Leu Pro Ser Ser Gly Val
50 55 60

Ser Phe Thr Asp Glu Asn Ile Ser Asn Gln Asp Leu Arg Ala Phe Thr
65 70 75 80

Ala Pro Glu Val Leu Gln Asn Gln Ser Leu Thr Ser Leu Ser Asp Val
85 90 95

Glu Lys Ile His Ile Tyr Ser Leu Gly Met Thr Leu Tyr Trp Gly Ala
100 105 110

Asp Tyr Glu Val Pro Gln Ser Gln Pro Ile Lys Leu Gly Asp His Leu
115 120 125

Asn Ser Ile Leu Leu Gly Met Cys Glu Asp Val Ile Tyr Ala Arg Val
130 135 140

Ser Val Arg Thr Val Leu Asp Ala Cys Ser Ala His Ile Arg Asn Ser
145 150 155 160

Asn Cys Ala Pro Ser Phe Ser Tyr Val Lys His Leu Val Lys Leu Val
165 170 175

Leu Gly Asn Leu Ser Gly Thr Asp Gln Leu Ser Cys Asn Ser Glu Gln
180 185 190

Lys Pro Asp Arg Ser Gln Ala Ile Arg Asp Arg Leu Arg Gly Lys Gly
195 200 205

Leu Pro Thr Gly Arg Ser Ser Thr Ser Asp Val Leu Asp Ile Gln Lys
210 215 220

Pro Pro Leu Ser His Gln Thr Phe Leu Asn Lys Gly Leu Ser Lys Ser
225 230 235 240

Met Gly Phe Leu Ser Ile Lys Asp Thr Gln Asp Glu Asn Tyr Phe Lys
245 250 255

Asp Ile Leu Ser Asp Asn Ser Gly Arg Glu Asp Ser Glu Asn Thr Phe
260 265 270

Ser Pro Tyr Gln Phe Lys Thr Ser Gly Pro Glu Lys Lys Pro Ile Pro
275 280 285

Gly Ile Asp Val Leu Ser Lys Lys Lys Ile Trp Ala Ser Ser Met Asp
290 295 300

Leu Leu Cys Thr Ala Asp Arg Asp Phe Ser Ser Gly Glu Thr Ala Thr
305 310 315 320

Tyr Arg Arg Cys His Pro Glu Ala Val Thr Val Arg Thr Ser Thr Thr
325 330 335

Pro Arg Lys Lys Glu Ala Arg Tyr Ser Asp Gly Ser Ile Ala Leu Asp
340 345 350

Ile Phe Gly Pro Gln Lys Met Asp Pro Ile Tyr His Thr Arg Glu Leu
355 360 365

Pro Thr Ser Ser Ala Ile Ser Ser Ala Leu Asp Arg Ile Arg Glu Arg
370 375 380

Gln Lys Lys Leu Gln Val Leu Arg Glu Ala Met Asn Val Glu Glu Pro
385 390 395 400

Val Arg Arg Tyr Lys Thr Tyr His Gly Asp Val Phe Ser Thr Ser Ser
405 410 415

Glu Ser Pro Ser Ile Ile Ser Ser Glu Ser Asp Phe Arg Gln Val Arg
420 425 430

Arg Ser Glu Ala Ser Lys Arg Phe Glu Ser Ser Ser Gly Leu Pro Gly
435 440 445

Val Asp Glu Thr Leu Ser Gln Gly Gln Ser Gln Arg Pro Ser Arg Gln
450 455 460

Tyr Glu Thr Pro Phe Glu Gly Asn Leu Ile Asn Gln Glu Ile Met Leu
465 470 475 480

Lys Arg Gln Glu Glu Glu Leu Met Gln Leu Gln Ala Lys Met Ala Leu
485 490 495

Arg Gln Ser Arg Leu Ser Leu Tyr Pro Gly Asp Thr Ile Lys Ala Ser
500 505 510

Met Leu Asp Ile Thr Arg Asp Pro Leu Arg Glu Ile Ala Leu Glu Thr
515 520 525

Ala Met Thr Gln Arg Lys Leu Arg Asn Phe Phe Gly Pro Glu Phe Val
530 535 540

Lys Met Thr Ile Glu Pro Phe Ile Ser Leu Asp Leu Pro Arg Ser Ile
545 550 555 560

Leu Thr Lys Lys Gly Lys Asn Glu Asp Asn Arg Arg Lys Val Asn Ile
565 570 575

Met Leu Leu Asn Gly Gln Arg Leu Glu Leu Thr Cys Asp Thr Lys Thr
580 585 590

Ile Cys Lys Asp Val Phe Asp Met Val Val Ala His Ile Gly Leu Val
595 600 605

Glu His His Leu Phe Ala Leu Ala Thr Leu Lys Asp Asn Glu Tyr Phe
610 615 620

Phe Val Asp Pro Asp Leu Lys Leu Thr Lys Val Ala Pro Glu Gly Trp
625 630 635 640

Lys Glu Glu Pro Lys Lys Lys Thr Lys Ala Thr Val Asn Phe Thr Leu
645 650 655

Phe Phe Arg Ile Lys Phe Phe Met Asp Asp Val Ser Leu Ile Gln His
660 665 670

Thr Leu Thr Cys His Gln Tyr Tyr Leu Gln Leu Arg Lys Asp Ile Leu
675 680 685

Glu Glu Arg Met His Cys Asp Asp Glu Thr Ser Leu Leu Leu Ala Ser
690 695 700

Leu Ala Leu Gln Ala Glu Tyr Gly Asp Tyr Gln Pro Glu Val His Gly
705 710 715 720

Val Ser Tyr Phe Arg Met Glu His Tyr Leu Pro Ala Arg Val Met Glu
725 730 735

Lys Leu Asp Leu Ser Tyr Ile Lys Glu Glu Leu Pro Lys Leu His Asn
740 745 750

Thr Tyr Val Gly Ala Ser Glu Lys Glu Thr Glu Leu Glu Phe Leu Lys
755 760 765

Val Cys Gln Arg Leu Thr Glu Tyr Gly Val His Phe His Arg Val His
770 775 780

Pro Glu Lys Lys Ser Gln Thr Gly Ile Leu Leu Gly Val Cys Ser Lys
785 790 795 800

Gly Val Leu Val Phe Glu Val His Asn Gly Val Arg Thr Leu Val Leu
805 810 815

Arg Phe Pro Trp Arg Glu Thr Lys Lys Ile Ser Phe Ser Lys Lys Lys
820 825 830

Ile Thr Leu Gln Asn Thr Ser Tyr Gly Ile Lys His Gly Phe Gln Thr
835 840 845

Asp Asn Ser Lys Ile Cys Gln Tyr Leu Leu His Leu Cys Ser Tyr Gln
850 855 860

His Lys Phe Gln Leu Gln Met Arg Ala Arg Gln Ser Asn Gln Asp Ala
865 870 875 880

Gln Asp Ile Glu Arg Ala Ser Phe Arg Ser Leu Asn Leu Gln Ala Glu
885 890 895

Ser Val Arg Gly Phe Asn Met Gly Arg Ala Ile Ser Thr Gly Ser Leu
900 905 910

Ala Ser Ser Thr Leu Asn Lys Leu Ala Val Arg Pro Leu Ser Val Gln
915 920 925

Ala Glu Ile Leu Lys Arg Leu Ser Cys Ser Glu Leu Ser Leu Tyr Gln
930 935 940

Pro Leu Gln Asn Ser Ser Lys Glu Lys Asn Asp Lys Ala Ser Trp Glu
945 950 955 960

Glu Lys Pro Arg Glu Met Ser Lys Ser Tyr His Asp Leu Ser Gln Ala
965 970 975

Ser Leu Tyr Pro His Arg Lys Asn Val Ile Val Asn Met Glu Pro Pro
980 985 990

Pro Gln Thr Val Ala Glu Leu Val Gly Lys Pro Ser His Gln Met Ser
995 1000 1005

Arg Ser Asp Ala Glu Ser Leu Ala Gly Val Thr Lys Leu Asn Asn
1010 1015 1020

Ser Lys Ser Val Ala Ser Leu Asn Arg Ser Pro Glu Arg Arg Lys
1025 1030 1035

His Glu Ser Asp Ser Ser Ser Ile Glu Asp Pro Gly Gln Ala Tyr
1040 1045 1050

Val Leu Gly Met Thr Met His Ser Ser Gly Asn Ser Ser Ser Gln
1055 1060 1065

Val Pro Leu Lys Glu Asn Asp Val Leu His Lys Arg Trp Ser Ile
1070 1075 1080

Val Ser Ser Pro Glu Arg Glu Ile Thr Leu Val Asn Leu Lys Lys
1085 1090 1095

Asp Ala Lys Tyr Gly Leu Gly Phe Gln Ile Ile Gly Gly Glu Lys
1100 1105 1110

Met Gly Arg Leu Asp Leu Gly Ile Phe Ile Ser Ser Val Ala Pro
1115 1120 1125

Gly Gly Pro Ala Asp Leu Asp Gly Cys Leu Lys Pro Gly Asp Arg
1130 1135 1140

Leu Ile Ser Val Asn Ser Val Ser Leu Glu Gly Val Ser His His
1145 1150 1155

Ala Ala Ile Glu Ile Leu Gln Asn Ala Pro Glu Asp Val Thr Leu
1160 1165 1170

Val Ile Ser Gln Pro Lys Glu Lys Ile Ser Lys Val Pro Ser Thr
1175 1180 1185

Pro Val His Leu Thr Asn Glu Met Lys Asn Tyr Met Lys Lys Ser
1190 1195 1200

Ser Tyr Met Gln Asp Ser Ala Met Asp Ser Ser Ser Lys Asp His
1205 1210 1215

His Trp	Ser Arg Gly Thr	Leu	Arg His Ile Ser	Glu	Asn Ser Phe
1220		1225		1230	
Gly Pro	Ser Gly Gly Leu	Arg	Glu Gly Ser Leu	Ser	Ser Gln Asp
1235		1240		1245	
Ser Arg	Thr Glu Ser Ala	Ser	Leu Ser Gln Ser	Gln	Val Asn Gly
1250		1255		1260	
Phe Phe	Ala Ser His Leu	Gly	Asp Gln Thr Trp	Gln	Glu Ser Gln
1265		1270		1275	
His Gly	Ser Pro Ser Pro	Ser	Val Ile Ser Lys	Ala	Thr Glu Lys
1280		1285		1290	
Glu Thr	Phe Thr Asp Ser	Asn	Gln Ser Lys Thr	Lys	Lys Pro Gly
1295		1300		1305	
Ile Ser	Asp Val Thr Asp	Tyr	Ser Asp Arg Gly	Asp	Ser Asp Met
1310		1315		1320	
Asp Glu	Ala Thr Tyr Ser	Ser	Ser Gln Asp His	Gln	Thr Pro Lys
1325		1330		1335	
Gln Glu	Ser Ser Ser Ser	Val	Asn Thr Ser Asn	Lys	Met Asn Phe
1340		1345		1350	
Lys Thr	Phe Ser Ser Ser	Pro	Pro Lys Pro Gly	Asp	Ile Phe Glu
1355		1360		1365	
Val Glu	Leu Ala Lys Asn	Asp	Asn Ser Leu Gly	Ile	Ser Val Thr
1370		1375		1380	
Val Leu	Phe Asp Lys Gly	Gly	Val Asn Thr Ser	Val	Arg His Gly
1385		1390		1395	
Gly Ile	Tyr Val Lys Ala	Val	Ile Pro Gln Gly	Ala	Ala Glu Ser
1400		1405		1410	
Asp Gly	Arg Ile His Lys	Gly	Asp Arg Val Leu	Ala	Val Asn Gly
1415		1420		1425	
Val Ser	Leu Glu Gly Ala	Thr	His Lys Gln Ala	Val	Glu Thr Leu
1430		1435		1440	
Arg Asn	Thr Gly Gln Val	Val	His Leu Leu Leu	Glu	Lys Gly Gln
1445		1450		1455	

Ser	Pro	Thr	Ser	Lys	Glu	His	Val	Pro	Val	Thr	Pro	Gln	Cys	Thr
1460						1465					1470			
Leu	Ser	Asp	Gln	Asn	Ala	Gln	Gly	Gln	Gly	Pro	Glu	Lys	Val	Lys
1475						1480					1485			
Lys	Thr	Thr	Gln	Val	Lys	Asp	Tyr	Ser	Phe	Val	Thr	Glu	Glu	Asn
1490						1495					1500			
Thr	Phe	Glu	Val	Lys	Leu	Phe	Lys	Asn	Ser	Ser	Gly	Leu	Gly	Phe
1505						1510					1515			
Ser	Phe	Ser	Arg	Glu	Asp	Asn	Leu	Ile	Pro	Glu	Gln	Ile	Asn	Ala
1520						1525					1530			
Ser	Ile	Val	Arg	Val	Lys	Lys	Leu	Phe	Pro	Gly	Gln	Pro	Ala	Ala
1535						1540					1545			
Glu	Ser	Gly	Lys	Ile	Asp	Val	Gly	Asp	Val	Ile	Leu	Lys	Val	Asn
1550						1555					1560			
Gly	Ala	Ser	Leu	Lys	Gly	Leu	Ser	Gln	Gln	Glu	Val	Ile	Ser	Ala
1565						1570					1575			
Leu	Arg	Gly	Thr	Ala	Pro	Glu	Val	Phe	Leu	Leu	Leu	Cys	Arg	Pro
1580						1585					1590			
Pro	Pro	Gly	Val	Leu	Pro	Glu	Ile	Asp	Thr	Ala	Leu	Leu	Thr	Pro
1595						1600					1605			
Leu	Gln	Ser	Pro	Ala	Gln	Val	Leu	Pro	Asn	Ser	Ser	Lys	Asp	Ser
1610						1615					1620			
Ser	Gln	Pro	Ser	Cys	Val	Glu	Gln	Ser	Thr	Ser	Ser	Asp	Glu	Asn
1625						1630					1635			
Glu	Met	Ser	Asp	Lys	Ser	Lys	Lys	Gln	Cys	Lys	Ser	Pro	Ser	Arg
1640						1645					1650			
Arg	Asp	Ser	Tyr	Ser	Asp	Ser	Ser	Gly	Ser	Gly	Glu	Asp	Asp	Leu
1655						1660					1665			
Val	Thr	Ala	Pro	Ala	Asn	Ile	Ser	Asn	Ser	Thr	Trp	Ser	Ser	Ala
1670						1675					1680			
Leu	His	Gln	Thr	Leu	Ser	Asn	Met	Val	Ser	Gln	Ala	Gln	Ser	His
1685						1690					1695			

His Glu	Ala Pro Lys Ser	Gln	Glu Asp Thr Ile	Cys	Thr Met Phe
1700		1705		1710	
Tyr Tyr	Pro Gln Lys Ile	Pro	Asn Lys Pro Glu	Phe	Glu Asp Ser
1715		1720		1725	
Asn Pro	Ser Pro Leu Pro	Pro	Asp Met Ala Pro	Gly	Gln Ser Tyr
1730		1735		1740	
Gln Pro	Gln Ser Glu Ser	Ala	Ser Ser Ser Ser	Met	Asp Lys Tyr
1745		1750		1755	
His Ile	His His Ile Ser	Glu	Pro Thr Arg Gln	Glu	Asn Trp Thr
1760		1765		1770	
Pro Leu	Lys Asn Asp Leu	Glu	Asn His Leu Glu	Asp	Phe Glu Leu
1775		1780		1785	
Glu Val	Glu Leu Leu Ile	Thr	Leu Ile Lys Ser	Glu	Lys Gly Ser
1790		1795		1800	
Leu Gly	Phe Thr Val Thr	Lys	Gly Asn Gln Arg	Ile	Gly Cys Tyr
1805		1810		1815	
Val His	Asp Val Ile Gln	Asp	Pro Ala Lys Ser	Asp	Gly Arg Leu
1820		1825		1830	
Lys Pro	Gly Asp Arg Leu	Ile	Lys Val Asn Asp	Thr	Asp Val Thr
1835		1840		1845	
Asn Met	Thr His Thr Asp	Ala	Val Asn Leu Leu	Arg	Ala Ala Ser
1850		1855		1860	
Lys Thr	Val Arg Leu Val	Ile	Gly Arg Val Leu	Glu	Leu Pro Arg
1865		1870		1875	
Ile Pro	Met Leu Pro His	Leu	Leu Pro Asp Ile	Thr	Leu Thr Cys
1880		1885		1890	
Asn Lys	Glu Glu Leu Gly	Phe	Ser Leu Cys Gly	Gly	His Asp Ser
1895		1900		1905	
Leu Tyr	Gln Val Val Tyr	Ile	Ser Asp Ile Asn	Pro	Arg Ser Val
1910		1915		1920	
Ala Ala	Ile Glu Gly Asn	Leu	Gln Leu Leu Asp	Val	Ile His Tyr
1925		1930		1935	

Val	Asn	Gly	Val	Ser	Thr	Gln	Gly	Met	Thr	Leu	Glu	Glu	Val	Asn
1940						1945					1950			
Arg	Ala	Leu	Asp	Met	Ser	Leu	Pro	Ser	Leu	Val	Leu	Lys	Ala	Thr
1955						1960					1965			
Arg	Asn	Asp	Leu	Pro	Val	Val	Pro	Ser	Ser	Lys	Arg	Ser	Ala	Val
1970						1975					1980			
Ser	Ala	Pro	Lys	Ser	Thr	Lys	Gly	Asn	Gly	Ser	Tyr	Ser	Val	Gly
1985						1990					1995			
Ser	Cys	Ser	Gln	Pro	Ala	Leu	Thr	Pro	Asn	Asp	Ser	Phe	Ser	Thr
2000						2005					2010			
Val	Ala	Gly	Glu	Glu	Ile	Asn	Glu	Ile	Ser	Tyr	Pro	Lys	Gly	Lys
2015						2020					2025			
Cys	Ser	Thr	Tyr	Gln	Ile	Lys	Gly	Ser	Pro	Asn	Leu	Thr	Leu	Pro
2030						2035					2040			
Lys	Glu	Ser	Tyr	Ile	Gln	Glu	Asp	Asp	Ile	Tyr	Asp	Asp	Ser	Gln
2045						2050					2055			
Glu	Ala	Glu	Val	Ile	Gln	Ser	Leu	Leu	Asp	Val	Val	Asp	Glu	Glu
2060						2065					2070			
Ala	Gln	Asn	Leu	Leu	Asn	Glu	Asn	Asn	Ala	Ala	Gly	Tyr	Ser	Cys
2075						2080					2085			
Gly	Pro	Gly	Thr	Leu	Lys	Met	Asn	Gly	Lys	Leu	Ser	Glu	Glu	Arg
2090						2095					2100			
Thr	Glu	Asp	Thr	Asp	Cys	Asp	Gly	Ser	Pro	Leu	Pro	Glu	Tyr	Phe
2105						2110					2115			
Thr	Glu	Ala	Thr	Lys	Met	Asn	Gly	Cys	Glu	Glu	Tyr	Cys	Glu	Glu
2120						2125					2130			
Lys	Val	Lys	Ser	Glu	Ser	Leu	Ile	Gln	Lys	Pro	Gln	Glu	Lys	Lys
2135						2140					2145			
Thr	Asp	Asp	Asp	Glu	Ile	Thr	Trp	Gly	Asn	Asp	Glu	Leu	Pro	Ile
2150						2155					2160			
Glu	Arg	Thr	Asn	His	Glu	Asp	Ser	Asp	Lys	Asp	His	Ser	Phe	Leu
2165						2170					2175			

Thr Asn	Asp Glu Leu Ala Val	Leu Pro Val Val Lys	Val Leu Pro
2180	2185	2190	
Ser Gly	Lys Tyr Thr Gly Ala	Asn Leu Lys Ser Val	Ile Arg Val
2195	2200	2205	
Leu Arg	Gly Leu Leu Asp Gln	Gly Ile Pro Ser Lys	Glu Leu Glu
2210	2215	2220	
Asn Leu	Gln Glu Leu Lys Pro	Leu Asp Gln Cys Leu	Ile Gly Gln
2225	2230	2235	
Thr Lys	Glu Asn Arg Arg Lys	Asn Arg Tyr Lys Asn	Ile Leu Pro
2240	2245	2250	
Tyr Asp	Ala Thr Arg Val Pro	Leu Gly Asp Glu Gly	Gly Tyr Ile
2255	2260	2265	
Asn Ala	Ser Phe Ile Lys Ile	Pro Val Gly Lys Glu	Glu Phe Val
2270	2275	2280	
Tyr Ile	Ala Cys Gln Gly Pro	Leu Pro Thr Thr Val	Gly Asp Phe
2285	2290	2295	
Trp Arg	Val Ile Trp Glu Gln	Lys Ser Thr Val Ile	Ala Met Met
2300	2305	2310	
Thr Gln	Glu Val Glu Gly Glu	Lys Ile Lys Cys Gln	Arg Tyr Trp
2315	2320	2325	
Pro Asn	Ile Leu Gly Lys Thr	Thr Met Val Ser Asn	Arg Leu Arg
2330	2335	2340	
Leu Ala	Leu Val Arg Met Gln	Gln Leu Lys Gly Phe	Val Val Arg
2345	2350	2355	
Ala Met	Thr Leu Glu Asp Ile	Gln Thr Arg Glu Val	Arg His Ile
2360	2365	2370	
Ser His	Leu Asn Phe Thr Ala	Trp Pro Asp His Asp	Thr Pro Ser
2375	2380	2385	
Gln Pro	Asp Asp Leu Leu Thr	Phe Ile Ser Tyr Met	Arg His Ile
2390	2395	2400	
His Arg	Ser Gly Pro Ile Ile	Thr His Cys Ser Ala	Gly Ile Gly
2405	2410	2415	

Arg Ser Gly Thr Leu Ile Cys Ile Asp Val Val Leu Gly Leu Ile
 2420 2425 2430

Ser Gln Asp Leu Asp Phe Asp Ile Ser Asp Leu Val Arg Cys Met
 2435 2440 2445

Arg Leu Gln Arg His Gly Met Val Gln Thr Glu Asp Gln Tyr Ile
 2450 2455 2460

Phe Cys Tyr Gln Val Ile Leu Tyr Val Leu Thr Arg Leu Gln Ala
 2465 2470 2475

Glu Glu Glu Gln Lys Gln Gln Pro Gln Leu Leu Lys
 2480 2485 2490

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 <211> 69
 <212> DNA
 <213> Homo sapiens

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 tttcaaatt 69

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 <211> 36
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<400> 9
 ggatcctcag tagtttttca ttcattggt gagatg 36

<210> 10
 <211> 69
 <212> DNA
 <213> Homo sapiens

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 gggataagt 69

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 <213> Homo sapiens

<400> 11
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 <212> DNA

<213> Homo sapiens

<400> 12

ggatccgccca ccatgtaccc atacgatgtg ccagattacg ccaaaaatag ctcaggtcta 60

ggattcagt 69

<210> 13

<211> 36

<212> DNA

<213> Homo sapiens

<400> 13

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<210> 14

<211> 69

<212> DNA

<213> Homo sapiens

<400> 14

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acagtaacc 69

<210> 15

<211> 36

<212> DNA

<213> Homo sapiens

<400> 15

agatcttcac gttagtgtta tgtccggtag caaatg 36

<210> 16

<211> 69

<212> DNA

<213> Homo sapiens

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ggttttttcc 69

<210> 17

<211> 36

<212> DNA

<213> Homo sapiens

<400> 17

agatcttcag taggaaccat tgccttttgg tgaactt 36

<210> 18

<211> 73

<212> DNA

<213> Homo sapiens

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gctgaggccc tgg 73

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<400> 19
ctgggccact agttttgaac tggtaagggg 30

<210> 20
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<212> DNA
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gaagttatca gaagaga 77

<210> 21
<211> 37
<212> DNA
<213> Homo sapiens

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<210> 22
<211> 926
<212> PRT
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<400> 22

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Ala Ser Glu Leu Ala Arg Asp Arg Gln His Thr Glu Val Val Cys Asn
20 25 30

Ile Leu Leu Leu Asp Asn Thr Val Gln Ala Phe Lys Val Asn Lys His
35 40 45

Asp Gln Gly Gln Val Leu Leu Asp Val Val Phe Lys His Leu Asp Leu
50 55 60

Thr Glu Gln Asp Tyr Phe Gly Leu Gln Leu Ala Asp Asp Ser Thr Asp
65 70 75 80

Asn Pro Arg Trp Leu Asp Pro Asn Lys Pro Ile Arg Lys Gln Leu Lys
85 90 95

Arg Gly Ser Pro Tyr Ser Leu Asn Phe Arg Val Lys Phe Phe Val Ser
 100 105 110

Asp Pro Asn Lys Leu Gln Glu Glu Tyr Thr Arg Tyr Gln Tyr Phe Leu
 115 120 125

Gln Ile Lys Gln Asp Ile Leu Thr Gly Arg Leu Pro Cys Pro Ser Asn
 130 135 140

Thr Ala Ala Leu Leu Ala Ser Phe Ala Val Gln Ser Glu Leu Gly Asp
 145 150 155 160

Tyr Asp Gln Ser Glu Asn Leu Ser Gly Tyr Leu Ser Asp Tyr Ser Phe
 165 170 175

Ile Pro Asn Gln Pro-Gln Asp Phe Glu Lys Glu Ile Ala Lys Leu His
 180 185 190

Gln Gln His Ile Gly Leu Ser Pro Ala Glu Ala Glu Phe Asn Tyr Leu
 195 200 205

Asn Thr Ala Arg Thr Leu Glu Leu Tyr Gly Val Glu Phe His Tyr Ala
 210 215 220

Arg Asp Gln Ser Asn Asn Glu Ile Met Ile Gly Val Met Ser Gly Gly
 225 230 235 240

Ile Leu Ile Tyr Lys Asn Arg Val Arg Met Asn Thr Phe Pro Trp Leu
 245 250 255

Lys Ile Val Lys Ile Ser Phe Lys Cys Lys Gln Phe Phe Ile Gln Leu
 260 265 270

Arg Lys Glu Leu His Glu Ser Arg Glu Thr Leu Leu Gly Phe Asn Met
 275 280 285

Val Asn Tyr Arg Ala Cys Lys Asn Leu Trp Lys Ala Cys Val Glu His
 290 295 300

His Thr Phe Phe Arg Leu Asp Arg Pro Leu Pro Pro Gln Lys Asn Phe
 305 310 315 320

Phe Ala His Tyr Phe Thr Leu Gly Ser Lys Phe Arg Tyr Cys Gly Arg
 325 330 335

Thr Glu Val Gln Ser Val Gln Tyr Gly Lys Glu Lys Ala Asn Lys Asp
 340 345 350

Arg	Val	Phe	Ala	Arg	Ser	Pro	Ser	Lys	Pro	Leu	Ala	Arg	Lys	Leu	Met
		355					360					365			
Asp	Trp	Glu	Val	Val	Ser	Arg	Asn	Ser	Ile	Ser	Asp	Asp	Arg	Leu	Glu
	370					375					380				
Thr	Gln	Ser	Leu	Pro	Ser	Arg	Ser	Pro	Pro	Gly	Thr	Pro	Asn	His	Arg
385						390				395					400
Asn	Ser	Thr	Phe	Thr	Gln	Glu	Gly	Thr	Arg	Leu	Arg	Pro	Ser	Ser	Val
				405					410					415	
Gly	His	Leu	Val	Asp	His	Met	Val	His	Thr	Ser	Pro	Ser	Glu	Val	Phe
			420					425					430		
Val	Asn	Gln	Arg	Ser	Pro	Ser	Ser	Thr	Gln	Ala	Asn	Ser	Ile	Val	Leu
		435					440					445			
Glu	Ser	Ser	Pro	Ser	Gln	Glu	Thr	Pro	Gly	Asp	Gly	Lys	Pro	Pro	Ala
	450					455					460				
Leu	Pro	Pro	Lys	Gln	Ser	Lys	Lys	Asn	Ser	Trp	Asn	Gln	Ile	His	Tyr
465					470					475					480
Ser	His	Ser	Gln	Gln	Asp	Leu	Glu	Ser	His	Ile	Asn	Glu	Thr	Phe	Asp
				485					490					495	
Ile	Pro	Ser	Ser	Pro	Glu	Lys	Pro	Thr	Pro	Asn	Gly	Gly	Ile	Pro	His
			500					505					510		
Asp	Asn	Leu	Val	Leu	Ile	Arg	Met	Lys	Pro	Asp	Glu	Asn	Gly	Arg	Phe
		515					520					525			
Gly	Phe	Asn	Val	Lys	Gly	Gly	Tyr	Asp	Gln	Lys	Met	Pro	Val	Ile	Val
	530					535					540				
Ser	Arg	Val	Ala	Pro	Gly	Thr	Pro	Ala	Asp	Leu	Cys	Val	Pro	Arg	Leu
545					550					555					560
Asn	Glu	Gly	Asp	Gln	Val	Val	Leu	Ile	Asn	Gly	Arg	Asp	Ile	Ala	Glu
				565					570					575	
His	Thr	His	Asp	Gln	Val	Val	Leu	Phe	Ile	Lys	Ala	Ser	Cys	Glu	Arg
			580					585					590		
His	Ser	Gly	Glu	Leu	Met	Leu	Leu	Val	Arg	Pro	Asn	Ala	Val	Tyr	Asp
		595					600					605			

Val 610	Val	Glu	Glu	Lys	Leu	Glu	Asn	Glu	Pro	Asp	Phe	Gln	Tyr	Ile	Pro
						615					620				
Glu 625	Lys	Ala	Pro	Leu	Asp	Ser	Val	His	Gln	Asp	Asp	His	Ser	Leu	Arg
					630					635					640
Glu	Ser	Met	Ile	Gln	Leu	Ala	Glu	Gly	Leu	Ile	Thr	Gly	Thr	Val	Leu
				645					650					655	
Thr	Gln	Phe	Asp	Gln	Leu	Tyr	Arg	Lys	Lys	Pro	Gly	Met	Thr	Met	Ser
			660					665					670		
Cys	Ala	Lys	Leu	Pro	Gln	Asn	Ile	Ser	Lys	Asn	Arg	Tyr	Arg	Asp	Ile
		675					680					685			
Ser	Pro	Tyr	Asp	Ala	Thr	Arg	Val	Ile	Leu	Lys	Gly	Asn	Glu	Asp	Tyr
		690				695					700				
Ile 705	Asn	Ala	Asn	Tyr	Ile	Asn	Met	Glu	Ile	Pro	Ser	Ser	Ser	Ile	Ile
					710					715					720
Asn	Gln	Tyr	Ile	Ala	Cys	Gln	Gly	Pro	Leu	Pro	His	Thr	Cys	Thr	Asp
				725					730					735	
Phe	Trp	Gln	Met	Thr	Trp	Glu	Gln	Gly	Ser	Ser	Met	Val	Val	Met	Leu
			740					745					750		
Thr	Thr	Gln	Val	Glu	Arg	Gly	Arg	Val	Lys	Cys	His	Gln	Tyr	Trp	Pro
		755					760					765			
Glu	Pro	Thr	Gly	Ser	Ser	Ser	Tyr	Gly	Cys	Tyr	Gln	Val	Thr	Cys	His
		770				775					780				
Ser 785	Glu	Glu	Gly	Asn	Thr	Ala	Tyr	Ile	Phe	Arg	Lys	Met	Thr	Leu	Phe
					790					795					800
Asn	Gln	Glu	Lys	Asn	Glu	Ser	Arg	Pro	Leu	Thr	Gln	Ile	Gln	Tyr	Ile
				805					810					815	
Ala	Trp	Pro	Asp	His	Gly	Val	Pro	Asp	Asp	Ser	Ser	Asp	Phe	Leu	Asp
			820					825					830		
Phe	Val	Cys	His	Val	Arg	Asn	Lys	Arg	Ala	Gly	Lys	Glu	Glu	Pro	Val
		835					840					845			
Val 850	Val	His	Cys	Ser	Ala	Gly	Ile	Gly	Arg	Thr	Gly	Val	Leu	Ile	Thr
						855					860				

Met Glu Thr Ala Met Cys Leu Ile Glu Cys Asn Gln Pro Val Tyr Pro
865 870 875 880

Leu Asp Ile Val Arg Thr Met Arg Asp Gln Arg Ala Met Met Ile Gln
885 890 895

Thr Pro Ser Gln Tyr Arg Phe Val Cys Glu Ala Ile Leu Lys Val Tyr
900 905 910

Glu Glu Gly Phe Val Lys Pro Leu Thr Thr Ser Thr Asn Lys
915 920 925

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<212> DNA
<213> Homo sapiens

<400> 23
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acctgatgaa aatgggaggt tggattcaat gtaaaggag gatatgatca gaagatgcct 120
gtgatttgt ctcgagtagc accaggaaca cctgctgacc tctgtgtccc tagactgaat 180
gaaggggacc aagttgtact gatcaatggt cgggacattg cagaacacac tcatgatcag 240
gttgtgctgt ttattaaagc tagttgtgag agacattctg gggaactcat gcttctagtt 300
cgacctaatg ctgtatatga ttagtgga gaaaagctag aaaatgagcc agatttccag 360
tatattcctg agaaagcccc actagatagt gtgcatcagg atgaccattc cctgcgggag 420
tcaatgatcc agctagctga ggggcttatt actggaacag tcctgacaca gtttgatcaa 480
ctgtatcgga aaaaacctgg aatgacaatg tcctgtgcca aattacctca gaatatttcc 540
aacaatataga tacagagata tttcgccctta tgatgccaca cgggtcattt taaaaggtaa 600
tgaagactac atcaatgcga actatacta 629

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<211> 73
<212> DNA
<213> Homo sapiens

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tgataatctt gtc 73

<210> 25
<211> 36
<212> DNA
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ggatcctcat acatcatata cagcattagg tcgaac 36

<210> 26
<211> 913
<212> PRT
<213> Homo sapiens

<400> 26

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1 5 10 15

Thr Ser Glu Leu Pro Lys Glu Lys Thr Arg Ser Glu Val Ile Cys Ser
20 25 30

Ile His Phe Leu Asp Gly Val Val Gln Thr Phe Lys Val Thr Lys Gln
35 40 45

Asp Thr Gly Gln Val Leu Leu Asp Met Val His Asn His Leu Gly Val
50 55 60

Thr Glu Lys Glu Tyr Phe Gly Leu Gln His Asp Asp Asp Ser Val Asp
65 70 75 80

Ser Pro Arg Trp Leu Glu Ala Ser Lys Ala Ile Arg Lys Gln Leu Lys
85 90 95

Gly Gly Phe Pro Cys Thr Leu His Phe Arg Val Arg Phe Phe Ile Pro
100 105 110

Asp Pro Asn Thr Leu Gln Gln Glu Gln Thr Arg His Leu Tyr Phe Leu
115 120 125

Gln Leu Lys Met Asp Ile Cys Glu Gly Arg Leu Thr Cys Pro Leu Asn
130 135 140

Ser Ala Val Val Leu Ala Ser Tyr Ala Val Gln Ser His Phe Gly Asp
145 150 155 160

Tyr Asn Ser Ser Ile His His Pro Gly Tyr Leu Ser Asp Ser His Phe
165 170 175

Ile Pro Asp Gln Asn Glu Asp Phe Leu Thr Lys Val Glu Ser Leu His
180 185 190

Glu Gln His Ser Gly Leu Lys Gln Ser Glu Ala Glu Ser Cys Tyr Ile
195 200 205

Asn Ile Ala Arg Thr Leu Asp Phe Tyr Gly Val Glu Leu His Ser Gly
210 215 220

Arg	Asp	Leu	His	Asn	Leu	Asp	Leu	Met	Ile	Gly	Ile	Ala	Ser	Ala	Gly	
225					230					235					240	
Val	Ala	Val	Tyr	Arg	Lys	Tyr	Ile	Cys	Thr	Ser	Phe	Tyr	Pro	Trp	Val	
				245					250					255		
Asn	Ile	Leu	Lys	Ile	Ser	Phe	Lys	Arg	Lys	Lys	Phe	Phe	Ile	His	Gln	
			260					265						270		
Arg	Gln	Lys	Gln	Ala	Glu	Ser	Arg	Glu	His	Ile	Val	Ala	Phe	Asn	Met	
		275					280					285				
Leu	Asn	Tyr	Arg	Ser	Cys	Lys	Asn	Leu	Trp	Lys	Ser	Cys	Val	Glu	His	
	290					295					300					
His	Thr	Phe	Phe	Gln	Ala	Lys	Lys	Leu	Leu	Pro	Gln	Glu	Lys	Asn	Val	
305					310					315					320	
Leu	Ser	Gln	Tyr	Trp	Thr	Met	Gly	Ser	Arg	Asn	Thr	Lys	Lys	Ser	Val	
				325					330					335		
Asn	Asn	Gln	Tyr	Cys	Lys	Lys	Val	Ile	Gly	Gly	Met	Val	Trp	Asn	Pro	
			340					345					350			
Ala	Met	Arg	Arg	Ser	Leu	Ser	Val	Glu	His	Leu	Glu	Thr	Lys	Ser	Leu	
		355					360					365				
Pro	Ser	Arg	Ser	Pro	Pro	Ile	Thr	Pro	Asn	Trp	Arg	Ser	Pro	Arg	Leu	
	370					375					380					
Arg	His	Glu	Ile	Arg	Lys	Pro	Arg	His	Ser	Ser	Ala	Asp	Asn	Leu	Ala	
385					390					395					400	
Asn	Glu	Met	Thr	Tyr	Ile	Thr	Glu	Thr	Glu	Asp	Val	Phe	Tyr	Thr	Tyr	
				405					410					415		
Lys	Gly	Ser	Leu	Ala	Pro	Gln	Asp	Ser	Asp	Ser	Glu	Val	Ser	Gln	Asn	
			420					425					430			
Arg	Ser	Pro	His	Gln	Glu	Ser	Leu	Ser	Glu	Asn	Asn	Pro	Ala	Gln	Ser	
		435					440					445				
Tyr	Leu	Thr	Gln	Lys	Ser	Ser	Ser	Ser	Val	Ser	Pro	Ser	Ser	Asn	Ala	
	450					455					460					
Pro	Gly	Ser	Cys	Ser	Pro	Asp	Gly	Val	Asp	Gln	Gln	Leu	Leu	Asp	Asp	
465					470					475					480	

Phe His Arg Val Thr Lys Gly Gly Ser Thr Glu Asp Ala Ser Gln Tyr
485 490 495

Tyr Cys Asp Lys Asn Asp Asn Gly Asp Ser Tyr Leu Val Leu Ile Arg
500 505 510

Ile Thr Pro Asp Glu Asp Gly Lys Phe Gly Phe Asn Leu Lys Gly Gly
515 520 525

Val Asp Gln Lys Met Pro Leu Val Val Ser Arg Ile Asn Pro Glu Ser
530 535 540

Pro Ala Asp Thr Cys Ile Pro Lys Leu Asn Glu Gly Asp Gln Ile Val
545 550 555 560

Leu Ile Asn Gly Arg Asp Ile Ser Glu His Thr His Asp Gln Val Val
565 570 575

Met Phe Ile Lys Ala Ser Arg Glu Ser His Ser Arg Glu Leu Ala Leu
580 585 590

Val Ile Arg Arg Arg Ala Val Arg Ser Phe Ala Asp Phe Lys Ser Glu
595 600 605

Asp Glu Leu Asn Gln Leu Phe Pro Glu Ala Ile Phe Pro Met Cys Pro
610 615 620

Glu Gly Gly Asp Thr Leu Glu Gly Ser Met Ala Gln Leu Lys Lys Gly
625 630 635 640

Leu Glu Ser Gly Thr Val Leu Ile Gln Phe Glu Gln Leu Tyr Arg Lys
645 650 655

Lys Pro Gly Leu Ala Ile Thr Phe Ala Lys Leu Pro Gln Asn Leu Asp
660 665 670

Lys Asn Arg Tyr Lys Asp Val Leu Pro Tyr Asp Thr Thr Arg Val Leu
675 680 685

Leu Gln Gly Asn Glu Asp Tyr Ile Asn Ala Ser Tyr Val Asn Met Glu
690 695 700

Ile Pro Ala Ala Asn Leu Val Asn Lys Tyr Ile Ala Thr Gln Gly Pro
705 710 715 720

Leu Pro His Thr Cys Ala Gln Phe Trp Gln Val Val Trp Asp Gln Lys
725 730 735

Leu Ser Leu Ile Val Met Leu Thr Thr Leu Thr Glu Arg Gly Arg Thr
740 745 750

Lys Cys His Gln Tyr Trp Pro Asp Pro Pro Asp Val Met Asn His Gly
755 760 765

Gly Phe His Ile Gln Cys Gln Ser Glu Asp Cys Thr Ile Ala Tyr Val
770 775 780

Ser Arg Glu Met Leu Val Thr Asn Thr Gln Thr Gly Glu Glu His Thr
785 790 795 800

Val Thr His Leu Gln Tyr Val Ala Trp Pro Asp His Gly Val Pro Asp
805 810 815

Asp Ser Ser Asp Phe Leu Glu Phe Val Asn Tyr Val Arg Ser Leu Arg
820 825 830

Val Asp Ser Glu Pro Leu Leu Val His Cys Ser Ala Gly Ile Gly Arg
835 840 845

Thr Gly Val Leu Val Thr Met Glu Thr Ala Met Cys Leu Thr Glu Arg
850 855 860

Asn Leu Pro Ile Tyr Pro Leu Asp Ile Val Arg Lys Met Arg Asp Gln
865 870 875 880

Arg Ala Met Met Val Gln Thr Ser Ser Gln Tyr Lys Phe Val Cys Glu
885 890 895

Ala Ile Leu Arg Val Tyr Glu Glu Gly Leu Val Gln Met Leu Asp Pro
900 905 910

Ser

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<212> DNA
<213> Homo sapiens

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<222> (594)..(594)
<223> any nucleotide

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tgaacattct caaaatttct ttcaaaagga aaaagttctt catacatcag cgacagaaac 120

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